National Research Initiative Competitive Grants Program

FY 2007 Request for Applications

U.S. Department of Agriculture
Cooperative State Research, Education, and Extension Service

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NRI REQUIRES ELECTRONIC SUBMISSION FOR ALL APPLICATIONS

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Initial Announcement

This Request for Applications (RFA) is being released prior to the passage of the FY 2007 Agricultural Appropriations Act in response to requests from our applicant community as well as the need to continue to fund critical agricultural research and integrated programs. However, the enactment of the FY 2007 Appropriation Act may not only impact the overall level of funding for the National Research Initiative (NRI) Program, but also the overall research and integrated grant portfolio for FY 2007. Hence, the Cooperative State Research, Education, and Extension Service (CSREES) reserves the right to amend, delete, or otherwise alter any programs. As indicated in the title of this RFA, this is an initial announcement for the NRI program and, depending on the FY 2007 Appropriation Act, CSREES may be issuing a supplemental RFA to those already identified in this RFA. Updated information about this RFA will be made available at http://www.csrees.usda.gov/fo/nri.html.

Executive Summary:

The Cooperative State Research, Education, and Extension Service (CSREES) requests applications for the National Research Initiative (NRI) Competitive Grants Program for fiscal year (FY) 2007 to support (1) high priority fundamental and mission-linked research of importance in the biological, environmental, physical, and social sciences relevant to agriculture, food, the environment, and rural communities, and (2) competitively awarded research, extension, and education grants addressing key issues of national and regional importance to agriculture, forestry, and related topics. In FY 2007, CSREES anticipates that approximately $181 million will be available for support of this program. Of this amount, no more than 22 percent will be made available to fund integrated projects. The remaining funds will be used to fund research projects.

This notice identifies program objectives for research and integrated projects. It describes separate eligibility criteria and matching requirements for each type of project, and instructs applicants regarding the submission and review of applications.

Stakeholder Input:

CSREES requests stakeholder input from any interested party for use in the development of the next RFA for this program. Such comments will be used to meet the requirements of section 103(c)(2) of the Agricultural Research, Extension, and Education Reform Act of 1998 (7 U.S.C. 7613(c)(2)). This section requires the Secretary to solicit and consider input on a current RFA from persons who conduct or use agricultural research, education, and extension for use in formulating future RFAs for competitive programs. Comments should be submitted as provided in the DATES portion of this announcement.

Written stakeholder comments should be submitted by mail to: Policy, Oversight, and Funds Management Branch Staff; Office of Extramural Programs; USDA-CSREES; STOP 2299; 1400 Independence Avenue, SW;

Washington, DC 20250-2299; or via e-mail to: RFP-OEP@csrees.usda.gov. (This e-mail address is intended only for receiving comments regarding this RFA and not requesting information or forms.) In your comments, please state that you are responding to the National Research Initiative RFA.

Dates:

All applications must be submitted via Grants.gov by close of business (COB), which is 5:00 p.m. Eastern Time, on the dates indicated in the table at the end of this announcement. Applications received after applicable deadlines will not be considered for funding. Comments regarding this RFA are requested within six months from the issuance of this notice. Comments received after that date will be considered to the extent practical.

********Please Read********

Important Changes for NRI FY 2007 Application Submission

********Please Read********

Electronic Application Submission Required:

In FY 2007, the NRI will only accept electronic application submissions through Grants.gov. Be aware that additional time is required to complete the electronic application process. Applications must be submitted via Grants.gov by Close of Business, 5:00 p.m. Eastern Time, on the program deadline as indicated under Part II, E.

Information about the new forms and submission requirements can be found in Part IV. **Note that all attachments must be submitted in the portable document format (PDF).**

Please review the new evaluation criteria established for Standard Research Grants, Integrated Project Grants, Strengthening Standard Research Project Grants, Postdoctoral Fellowships, and New Investigator Awards, located in Part V, B, of the RFA.

Helpful Information for Submission	**Website Address**
Information pertaining to the transition to electronic submission can be found at the CSREES website.	www.csrees.usda.gov/funding/electronic This page will be updated frequently and should be checked for program-specific help.
Applications should be submitted through the Grants.gov website.	Grants.gov
The **CSREES GRANTS.GOV Application Guide** provides guidance for completing the forms required by Grants.gov and CSREES. Used in conjunction with the RFA, this guide will assist applicants with most field-specific questions.	http://www.csrees.usda.gov/funding/grant_forms/electronic_app_guide.pdf) Please check back on this document. It will be updated frequently.

If you have any questions related to preparing application content, contact:

Email: electronic@csrees.usda.gov

Phone: 202-401-5048, Business hours are M-F, 7:00 am – 5 pm ET, excluding Federal holidays.

If you have any questions related to Grants.gov content, contact:

Email: support@grants.gov

Toll Free: 1-800-518-4726, Business hours are M-F, 7:00 am – 5 pm ET, excluding Federal holidays.

If you have any questions related to a specific program in this RFA, refer to the RFA Program Descriptions (Part II, E), and contact the appropriate National Program Leader.

FY 2007 Appropriations:

This RFA is being released prior to the passage of the FY 2007 Agricultural Appropriations Act in response to requests from our applicant community as well as the need to continue to fund critical agricultural research and integrated programs. However, the enactment of the FY 2007 Appropriation Act may not only impact the overall level of funding for the NRI program but also the overall research and integrated grant portfolio for FY 2007. Hence, CSREES reserves the right to amend, delete, or otherwise alter any programs. As indicated in the title of this RFA, this is an initial announcement for the NRI program and depending on the FY 2007

Agricultural Appropriation Act, CSREES may be issuing a supplemental RFA to those already identified in this RFA. Updated information about this RFA will be made available at http://www.csrees.usda.gov/fo/nri.html.

Organization of the FY 2007 NRI RFA:

In FY 2007, programs are organized within the following four Program Clusters: Agricultural Genomics and Biosecurity; Agricultural Production and Value-Added Processing; Agroecosystems and Rural Prosperity; and Nutrition, Food Safety, and Quality. Each Program Description contains long-term (10-year) goals and FY 2007 priorities for research and/or integrated research, education, and extension projects.

Budget Restrictions Require Strict Adherence to Funding Limits:

The NRI has mandatory funding limits for all applications. **Applications requesting budgets exceeding the funding limit (including indirect costs) for the program of interest will be returned without review.** Applicants are strongly encouraged to read the entire Program Description and contact the appropriate National Program Leader for additional information relative to their program(s) of interest.

New Strengthening Requirements:

The Strengthening requirements for the NRI in FY 2007 have changed. For Postdoctoral Fellowships, the cut-off date for receipt of Ph.D. degree is now based on the specific NRI program due date. Specifically, the applicant may not have received a doctoral degree before January 1 of the fiscal year three years prior to the submission of the proposal (January 1, 2004 for FY 2007) and not later than nine months after the proposal due date for the specific NRI program to which the PD is applying. For New Investigator proposals, applicants who have previously received an NRI seed grant are still eligible to apply for a New Investigator award. The PD must meet all eligibility requirements for New Investigator awards. Research Career Enhancement, Seed Grants, and Standard Strengthening Research Project Awards are no longer restricted to eligible applicants who have not received an NRI research grant in the last 5 years. The PD for these grants must meet all Strengthening eligibility requirements as described in these guidelines. An individual applicant may submit only one of the following types of strengthening applications (research career enhancement, equipment grants, and seed grants) as PD or co-PD this fiscal year.

Acceptance of Application:

Each Program Description in the FY 2007 RFA (see Part II, E) contains priorities for research and/or integrated research, education, and extension projects and the contact information for the National Program Leader responsible for the program. **The National Program Leader will return applications without review that exceed program funding limits, do not meet FY 2007 priorities, or do not follow formatting guidelines** (e.g. PDF attachment requirement, page limitations, margin size, font size, etc.). See Part II, E for program priorities and program funding limits (including indirect costs) and Part IV for formatting guidelines.

Letters of Intent Required for Specific Programs:

In FY 2007, eleven NRI programs will **require** a Letter of Intent prior to submission of a full application (23.1 Managed Ecosystems, 25.0 Soil Processes, 31.0 Bioactive Food Components for Optimal Health, 51.9 Biology of Weedy and Invasive Species in Agroecosystems, 52.1 Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP), 56.0 Plant Biology (A): Gene Expression and Genetic Diversity, 56.0 Plant Biology (B): Environmental Stress, 56.0 Plant Biology (C): Biochemistry, 56.0 Plant Biology (D): Growth and Development, 71.1 Improving Food Quality and Value, and 71.2 Biobased Products and Bioenergy Production Research). A Letter of Intent applies to standard research projects, integrated projects, standard strengthening awards, postdoctoral fellowship and new investigator applications. A Letter of Intent is not required for sabbatical awards, equipment grants, conference grants, and seed grants. Required information is detailed in each program description, see Part II, E. The Letter of Intent will be reviewed for relevance of the project to program goals and priorities as well as innovation and potential scientific impact. Invitations to submit a full application will be issued by the National Program Leader. For these 11 programs, applications submitted without prior approval of the Letter of Intent by the National Program Leader will be returned without review.

Forestry Research Opportunities:

There are a number of opportunities for those interested in forestry related research. These include research related to natural resources with emphasis on managed forest ecosystems, forest soils and air quality (programs

23.1, 25.0, 28.0, and 51.9). There are also opportunities related to bioenergy and new enhanced value products for forest materials (71.2). Tree improvement and forest genetics/genomics are supported (52.1 and 56.0) as well as biology and genomics of forest arthropods, nematodes, and pathogens (51.0, 51.2, and 51.8). The total competitive funding that can support forestry and forestry related research in these programs is anticipated to be approximately $60,000,000.

Annual Meeting of Investigators:

If a project is funded, beginning in the first year of funding, the project director will be required to attend the annual investigator meetings for the duration of the award to report progress on CSREES funded research and integrated activities. Reasonable travel expenses should be included as part of the project budget.

Identification of Integrated Projects:

To aid the National Research Initiative in identifying integrated projects, please designate if project is integrated in the first sentence of the Project Summary. For more information on integrated programs in the NRI please visit http://www.csrees.usda.gov/funding/integrated/integrated.html.

Integrated projects bring together the three components of the agricultural knowledge system (research, education, and extension) around a problem or issue. In FY 2007, the NRI is seeking to support projects that bring together at least two of these components. Eligibility and requirements for matching funds and types of projects differ by application type; thus, applicants are strongly encouraged to read the entire RFA and contact the appropriate National Program Leader with any questions. The NRI will use no more than 22 percent of available funds to support integrated research, extension, and education grants (see Part I, A); these funds will not be distributed uniformly across all NRI programs.

Eligibility for EPSCoR funds for FY 2006 through FY 2008:

For FY 2006 through FY 2008 the states eligible for USDA EPSCoR funding are: Alabama, Alaska, Arkansas, Delaware, Hawaii, Idaho, Kentucky, Louisiana, Maine, Nevada, New Jersey, New Mexico, North Dakota, Oklahoma, South Carolina, South Dakota, Vermont, West Virginia, Wyoming and other entities eligible for USDA-EPSCoR funding. Please note that institutions in Connecticut, New Hampshire, Mississippi, and Rhode Island are not eligible for USDA EPSCoR funding in FY 2006 through FY 2008. Additional information on how EPSCoR states are determined is available in Part II C, 2(c).

Postdoctoral Fellowships:

Beginning in FY 2005, the maximum award size for Postdoctoral Fellowships was increased to a total of $125,000 for two years. Applications must be submitted by the deadline date indicated for the relevant NRI Program with the appropriate scientific and technical expertise to review the application, see Part II,C, 2 (a). Beginning in FY 2007, the cut-off date for receipt of Ph.D. degree is now based on the specific NRI program due date. Specifically, the applicant may not have received a doctoral degree before January 1 of the fiscal year three years prior to the submission of the proposal (January 1, 2004 for FY 2007) and not later than nine months after the proposal due date for the specific NRI program to which the PD is applying.

Equipment Grants:

Eligibility for equipment grants is open to any degree-granting institution that is not among the most successful universities and colleges in receiving Federal funds for science and engineering research. Please refer to Table 1 for a complete list of institutions that are **NOT** eligible for equipment grants. See Part II, C, 2 (c) (ii) for additional information. Applications must be submitted by the deadline date indicated for the relevant NRI Program with the appropriate scientific and technical expertise to review the application.

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PART I–FUNDING OPPORTUNITY DESCRIPTION

A. Legislative Authority and Background

The authority to support research projects through this program is contained in 7 U.S.C. 450i(b). Under this authority, subject to the availability of funds, the Secretary may award competitive research grants, for periods not to exceed five years, for the support of research projects to further the programs of the USDA.

In FY 2006, Section 710 of the General Provisions of the Consolidated Appropriations Act, 2004 (Pub. L. 108-447) provided CSREES with the authority to use up to 22 percent of the amount made available in the Act for the National Research Initiative Competitive Grants Program (NRI), to carry out a competitive grants program under the same terms and conditions as those provided in Section 401 of the Agricultural Research, Extension, and Education Reform Act of 1998 (AREERA) (7 U.S.C. 7621). In FY 2007, CSREES anticipates similar language; however, funding for integrated activities is contingent on the inclusion of the integrated authority in the FY 2007 Agricultural Appropriations Act and the availability of appropriated funds.

Section 401 of AREERA authorizes the Secretary of Agriculture to establish a research, extension, and education competitive grants program to address critical emerging U.S. agricultural and rural issues related to future food production; environmental quality and natural resource management; farm income; or rural, economic and business and community development policy. In addition, the Secretary of Agriculture is authorized to make grants that address priority mission areas related to: (1) agricultural genomics, (2) food safety, food technology, and human nutrition, (3) new and alternative uses and production of agricultural commodities and products, (4) agricultural biotechnology, (5) natural resource management, including precision agriculture, and (6) farm efficiency and profitability, including the viability and competitiveness of small and medium-sized dairy, livestock, crop, and other commodity operations.

B. Purpose and Priorities

CSREES Competitive Programs Unit administers the NRI. The purpose of the NRI Competitive Grants Program is to support research grants and integrated research, extension, and education grants that address key problems of National, regional, and multi-state importance in sustaining all components of agriculture (farming, ranching, forestry including urban and agroforestry, aquaculture, rural communities, human nutrition, processing, etc.). Providing this support requires that NRI advances fundamental sciences in support of agriculture and coordinates opportunities to build on these discoveries. Building on these discoveries will necessitate new efforts in education and extension that deliver science-based knowledge to people, allowing them to make informed practical decisions. Hence, the NRI is accepting applications for fundamental research, mission-linked research, and integrated research, extension, and education projects. However, applicants should know that the NRI will use no more than 22 percent of available funds to support integrated projects (see Part I, A) and that these funds will not be distributed uniformly, but targeted to specific priorities. Targeted priorities for integrated projects are clearly identified within the detailed descriptions of program offerings (see Part II, E).

CSREES may also solicit applications for NRI funds through other announcements, including supplemental FY 2007 NRI RFAs or in conjunction with multi-agency programs. Such announcements will be made public in the same manner as this announcement.

1. Fundamental research

Research testing scientific hypotheses and providing basic knowledge that enables advances in applied research and from which major conceptual breakthroughs are expected to occur.

2. Mission-linked research

Research conducted on specifically identified agricultural problems that, through a continuum of efforts, provide information and technology that may be transferred to users and may relate to a product, practice, or process.

3. Multidisciplinary projects

Multidisciplinary projects may be research or integrated by nature in which investigators from two or more disciplines collaborate closely. These collaborations, where appropriate, may integrate the biological, physical, chemical, or social sciences.

4. Integrated projects

"Integrated" means to bring together the three components of the agricultural knowledge system (research, education, and extension) around a problem or issue. In FY 2007, integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, contain strong plans for project management and project evaluation, and produce sustained education/extension initiatives.

The programs described herein were developed within the context of the authorized purposes of USDA research, extension, and education, and within the framework of the CSREES Strategic Plan. In addition, the NRI obtains input from Congress, the National Agricultural Research, Extension, Education, and Economics Advisory Board as well as many university, scientific, and agricultural committees and organizations.

PART II–AWARD INFORMATION

A. Available Funding

There is no commitment by USDA to fund any particular application or to make a specific number of awards. Contingent on congressional action, in FY 2007, CSREES anticipates that approximately $181 million will be available for support of this program. Of this amount, CSREES anticipates that no more than 22 percent will be made available to fund integrated projects (see Part I, A). The remaining funds will be used to fund research projects. No less than 10 percent of the funds available to support research projects will be made available for Agricultural Research Enhancement Awards (excluding New Investigator Awards), and no more than two percent will be made available for equipment grants. Further, no less than 30 percent of the funds available to support research projects shall be made available for grants for research to be conducted by multidisciplinary teams, and no less than 40 percent shall be made available for grants for mission-linked systems research. NRI funds may be used to fund applications submitted to supplementary NRI RFAs and/or solicitations for multi-agency programs in which the NRI is participating.

B. Types of Applications

In FY 2007, applications may be submitted to the NRI Program as one of the following four types of requests:

1. New application

This is a project application that has not been previously submitted to the National Research Initiative. All new applications will be reviewed competitively using the selection process and evaluation criteria described in Part V.

2. Renewal application

This is a project application that requests additional funding for a project beyond the period that was approved in an original or amended award. Applications for renewed funding must contain the same information as required for new applications. Additionally, a renewal application must contain a Progress Report. Renewal applications must be received by the relevant due dates, will be evaluated in competition with other pending applications in the appropriate area to which they are assigned, and will be reviewed according to the same evaluation criteria as new applications.

3. Resubmitted application

This is an application that had previously been submitted to the National Research Initiative, but was not funded. Project Directors (PDs) must respond to the previous review panel summary. Resubmitted applications must be received by the relevant due dates, will be evaluated in competition with other

pending applications in the appropriate area to which they are assigned, and will be reviewed according to the same evaluation criteria as new applications. The revised application should clearly indicate the changes that have been made in the proposed project. Applications which appear to be resubmissions (regardless of the designation) are regarded as such by the Program and the panel, and compete on the same basis with all other applications (new, renewal, and resubmissions) submitted to the program at the same time.

4. Resubmitted renewal application

This is a project application that requests additional funding for a project beyond the period that was approved in the original or amended award and that had previously been submitted for renewal to the NRI Program but was not approved. Therefore, PDs must provide a Progress Report as required under the Project Description, and must respond to the previous review panel summary as required under Response to Previous Review. Resubmitted renewal applications must be received by the relevant due dates, will be evaluated in competition with other pending applications in the appropriate areas to which they are assigned, and will be reviewed according to the same evaluation criteria as new applications.

C. Project Types

For applications proposing research projects or integrated research, education, and extension activities, support will be provided through Standard Research Grants, Integrated Project Grants, Conference Grants, Postdoctoral Fellowships, New Investigator Awards, and Strengthening Awards.

In FY 2007, applications are being solicited for the project types:

1. Conventional Projects

(a) Standard Research Grants

Research will be supported that is **fundamental** or **mission-linked** and that is conducted by **individual** investigators, co-investigators within the same discipline, or **multidisciplinary** teams.

A new type of standard award was introduced in FY 2004, the Coordinated Agricultural Project (CAP) award. Applications for CAP awards will be solicited by a very limited number of programs. CAP awards support large-scale multi-million dollar projects to promote collaboration, open communication, and the exchange of information; reduce duplication of effort; and coordinate activities among individuals, institutions, States, and regions. Project participants serve as a team that conducts targeted research in response to emerging or priority area(s) of National need. Applications articulate how a CAP will complement and/or link with existing programs or projects at the National level. A research CAP project contains the needed science-based expertise as well as expertise from principal stakeholders and partners to accomplish project goals and objectives. Applications outline the potential of the project, the structure, coordination, and plan of implementation; and propose several research areas that will be evaluated during the study period.

CAP awards are typically made as continuation grants. A continuation grant is a grant instrument by which the Department agrees to support a specified level of effort for a predetermined period of time with a statement of intention to provide additional support at a future date, provided that performance has been satisfactory, appropriations are available for this purpose, and continued support would be in the best interest of the Federal government and the public.

In FY 2007, the Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP) is soliciting applications for new CAP projects. Please refer to successful CAP awards in this program for examples. In FY 2007, the Animal Protection and Biosecurity (C): Animal Biosecurity Coordinated Agricultural Projects (CAP) is soliciting a renewal application for the existing Avian Influenza CAP.

(b) Conference Grants

Scientific meetings that bring together scientists to identify research, education, or extension needs, update information, or advance an area of science are recognized as integral parts of scientific efforts. Support for a limited number of meetings covering subject matter encompassed by this solicitation will be considered

for partial or, if modest, total support. Conference awards are not expected to exceed $10,000 and are not renewable. Indirect costs are not allowed. Conference Grant applications should be submitted by the deadline date for the appropriate program described under Part II, E. Applicants considering submitting conference applications are strongly advised to consult appropriate NRI staff before preparing their applications.

2. Agricultural Research Enhancement Awards (AREA)

To contribute to the enhancement of research capabilities in the research programs described herein, applications are solicited for Agricultural Research Enhancement Awards (AREA). These awards are designed to help institutions develop competitive research programs and to attract new scientists into careers in high-priority areas of national need in agriculture, food, and environmental sciences. The AREA program provides support for Postdoctoral Fellowships, research awards for New Investigators, and Strengthening Awards. Specific eligibility requirements for these awards are described below. Applications submitted by non-United States organizations will not be considered for support. However, United States citizens applying as individuals for Postdoctoral Fellowships may do all or part of the proposed work at a non-United States organization.

(a) Postdoctoral Fellowships

Individuals who have recently received or will soon receive their doctoral degree are encouraged to submit applications. **These applications may be submitted either directly by the individual or through the mentor's institution. The postdoctoral applicant must be the sole PD listed on the application**. The following requirements apply: (1) the doctoral degree must be received after January 1, 2004 and can not be received later than nine months after the application due date for the NRI program of interest; (2) the individual must be a citizen of the United States; (3) the application must contain (A) documentation that arrangements have been made with an established investigator to serve as mentor; (B) documentation that arrangements have been made for the necessary facilities, space, and materials for conduct of the research; and (C) documentation from the host institution's authorized organizational representative (AOR) indicating that the host institution concurs with these arrangements; and (4) the research proposed must be solicited in and directly submitted to a specific program described under Part II, E.

Although a proposed project may fit in the context of the mentor's existing research area, projects are specifically solicited that initiate an individual’s postdoctoral independent research program, rather than serve as extensions of ongoing projects in the mentor's laboratory. Postdoctoral awards are limited to a total award of $125,000 for two-year duration and are not renewable. Funds should be requested primarily for salary support, although other expenditures (e.g. supplies, travel, and publication) are allowable costs if properly justified. Institutional allowance (not to exceed $2,400/year) may be requested within the $125,000 maximum award limit. Indirect costs are not allowed.

An institution may provide compensation for non-research services. Compensation for services is not considered stipend supplementation. However, it is expected that compensated services will occur on a limited, part-time basis apart from the normal postdoctoral research activities, which require a minimum of 40 hours per week. Under no circumstances may the conditions of stipend supplementation or the services provided for compensation interfere with, detract from, or prolong the fellow's two year approved NRI postdoctoral fellowship.

Applications should be submitted to the appropriate research program described in this solicitation by the designated deadline for that particular program. A separate peer review panel will not be assembled to review these applications. Applicants are urged to contact the appropriate National Program Leader concerning questions related to eligibility, budget, and similar matters.

(b) New Investigator Awards

A new investigator is one who is beginning his/her research career, does not have an extensive research publication record, and has less than five years postgraduate, career-track research experience. The new investigator may not have received competitively awarded Federal research funds with the exception of pre- or postdoctoral research awards or USDA NRI Seed Grants. The application must contain documentation that lists all prior Federal research support. **The PD must meet all of the New Investigator eligibility requirements as described within these guidelines.**

Applications may be submitted by any State agricultural experiment station, college, university, other research institution or organization, Federal agency, national laboratory, private organization, corporation, or individual. Applications submitted by non-United States organizations will not be considered for support. The research proposed shall be appropriate to a program described under Part II, E, and **the application must be submitted directly to that program by the designated deadline date. A separate peer review panel will not be assembled to review these applications.**

(c) Strengthening Awards
Strengthening Awards consist of Research Career Enhancement Awards (Sabbatical Awards), Equipment Grants, Seed Grants, and Strengthening Standard Research Awards. **The NRI particularly encourages applications for Research Career Enhancement Awards (Sabbatical Awards).** All applications submitted for Strengthening Awards must fulfill the requirements for a Strengthening Award as well as be appropriate to one of the programs described in this document.

Flow Chart for Strengthening Award Eligibility
To assist the applicant, a flow chart for determining eligibility for Strengthening Research Awards is provided as Figure 1 at the end of this document.

Equipment Grants will be available to PDs at academic institutions **not** among the top universities and colleges for receiving Federal funds for science and engineering research, see Table 1. Research Career Enhancement Awards, Seed Grants, and Strengthening Standard Research Awards will be available to PDs at small and mid-sized academic institutions **not** among the top universities and colleges for receiving Federal funds for science and engineering research or at an institution located at an Experimental Program for Stimulating Competitive Research (EPSCoR) state (See Table 1 for a list of the most successful institutions). Every three years, the NRI calculates which states are eligible for USDA EPSCoR funding. This list is generated by calculating the states that have had a funding level from the NRI no higher than the 38th percentile of all states, based on total funding for the previous three-year period (excluding strengthening set-aside funds). For FY 2007, the following States meet the requirements for this category:

Alabama	Alaska	Arkansas	Delaware	Hawaii	Idaho	Kentucky
Louisiana	Maine	Nevada	New Jersey	New Mexico	North Dakota	Oklahoma
South Carolina	South Dakota	Vermont	West Virginia	Wyoming		

Other entities eligible for USDA-EPSCoR funds in FY 2007 include the following United States commonwealths, territories, possessions and their successors, and the District of Columbia:

American Samoa	District of Columbia	Guam	Micronesia
Northern Mariana Islands	Puerto Rico	Virgin Islands of the U.S.	

When determining eligibility for Research Career Enhancement Awards, Equipment Grants, Seed Grants, and Strengthening Standard Research Project Awards, the following definitions apply:

(1) Small and mid-sized institutions are academic institutions with a current total enrollment of 15,000 or less, including graduate and undergraduate and full- and part-time students. (Applicants applying under this category should indicate the current total enrollment of the institution in a cover letter.) An institution in this instance is an organization that possesses a significant degree of autonomy.

(2) Limited institutional success means institutions are **not** among the most successful universities and colleges for receiving Federal funds for science and engineering research. See Table 1 at the end of the document for an alphabetical list of the most successful institutions. **The institutions listed in Table 1 do not qualify for equipment grants.**

The PD must meet all Strengthening eligibility requirements as described in these guidelines. An individual applicant may submit only one of the following types of strengthening applications (research career enhancement, equipment grants, and seed grants) as PD or co-PD this fiscal year. Investigators are encouraged to contact the National Program Leader of the appropriate program, described in Part II, E, regarding questions about suitability of research topics or research topics from which equipment would be used and to verify eligibility.

(i) Research Career Enhancement Awards (Sabbatical Awards)

The purpose of these awards is to provide an opportunity for faculty to enhance their research capabilities by funding sabbatical leaves. **Collaborative arrangements are encouraged. Research colleagues who serve as collaborators should not be listed on the Senior/Key Person Profile.**

CSREES also encourages and will support the concept of "mini-sabbaticals" for faculty desiring short-term training to learn new techniques that will improve their competitiveness. These short-term training opportunities generally follow all of the sabbatical items described below but with a shorter duration. These awards also could be used to participate in short courses offered at various research institutions. These awards will be limited to individual faculty who have appointments at small and mid-sized degree-granting institutions that previously have had limited institutional success and to faculty who have appointments at degree-granting institutions eligible for USDA-EPSCoR funding.

The sabbatical description must include the research interests and goals of the PD, the research project to be pursued while on sabbatical leave, an indication of how the sabbatical leave will enhance the research capabilities of the PD, and a statement of future research goals and how the sabbatical will enable the PD to pursue these goals. A letter detailing the particulars of the arrangement with the home institution (e.g. dates and duration of sabbatical and salary arrangements) and a letter of support and intent from the established investigator who will be the host are to be included with the application. The host's letter is to provide assurance that all facilities and space necessary for conduct of the research will be available. Awards will be limited to one year of salary and funds for travel and supplies. These awards are not renewable.

(ii) Equipment Grants

Funds will be designated for equipment grants to strengthen the research capacity of institutions. Eligibility for equipment grants is open to any degree-granting institution that is not among the most successful universities and colleges in receiving Federal funds for science and engineering research. (See Table 1 for most successful institutions).

Each request shall be limited to one major piece of equipment within the cost range of $10,000-$250,000. The amount requested shall not exceed 50 percent of the cost or $50,000 whichever is less. Unless waived, it is the responsibility of the PD to secure the required matching funds with non-Federal funds. A letter(s) from the organization(s) committed to providing the remaining non-Federal funds must be included in the application. The requirement for matching funds may be waived if the award is to a college, university, or research foundation maintained by a college or university that ranks in the lowest one-third of such colleges, universities, and research foundations on the basis of Federal research funds received (see Table 2 for a list of institutions that are eligible for waiver of matching funds for equipment grants) and if the equipment to be acquired costs not more than $25,000 and has either multiple uses within a single research project or is useable in more than one research project. No installation, maintenance, warranty, or insurance expenses may be paid from these awards, nor may these costs be part of the matching funds. Indirect costs are not permitted on Equipment Grant Awards.

A description of the research project(s) for which the equipment will be used and how the equipment will fit into or enhance the research program and allow the applicant(s) to become more competitive for future funding is required. A description of similar or complementary equipment available to the PD and why the requested equipment is necessary is also required. PDs are

encouraged to provide evidence of institutional commitment for operation and maintenance of requested equipment. Arrangements for sharing equipment among faculty are encouraged. However, it must be evident that the PD is a principal user of the requested equipment. These awards are not intended to replace requests for equipment in individual research projects. Rather, they are intended to help fund items of equipment that will upgrade research infrastructure. Requests for computer equipment are allowed only if the equipment is to be used in an activity integral to the proposed project; requests for computer equipment will not be permitted if the equipment will primarily serve as a word processor or perform administrative functions.

(iii) Seed Grants

The purpose of these awards is to provide funds to enable investigators to collect preliminary data in preparation for applying for a Standard Research Grant. These awards will be limited to faculty with appointments at small and mid-sized degree granting institutions that have had limited institutional success and to faculty with appointments at degree granting institutions eligible for USDA-EPSCoR funding. In order to be eligible, a proposed PD must meet all the eligibility requirements of a Strengthening Award. These awards will be limited to a total of $100,000 (including indirect costs) for two years and are **not renewable**. Applications for seed grants are expected to indicate how the research will enhance future competitiveness of the PD in applying for Standard Research Grants. Also, awards are not intended to fund stand-alone research projects, but rather projects that will lead to further research applicable to one of the research areas in the NRI.

(iv) Strengthening Standard Research Project Awards

These awards will be limited to faculty with appointments at small and mid-sized degree granting institutions that have had limited institutional success and to faculty with appointments at degree granting institutions eligible for USDA-EPSCoR funding. The PD must meet all eligibility requirements for the Standard Strengthening Research Project Awards Program.

3. Integrated Projects

(a) Integrated Project Grants

Integrated project applications may involve any combination of research, education, and extension activities, with the provision that every project must include at least two of the three stated components (i.e. research, education, and extension) required for integration as defined in Part VIII, H. Integrated project applications may include, for example, institutions that conduct research; synthesize previous research; develop curricula and build educational and research capacity; and transfer information to producers, end users, and the public. The type and number of participating institutions should be appropriate to the project proposed and should include all participants necessary for successful completion of the project. Integrated projects are expected to generate new knowledge and/or apply existing knowledge quickly through outreach and the dissemination of information on specific issues in agriculture and food systems where results may be visible over the short term. In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, contain strong plans for project management and project evaluation, and produce sustained educational initiatives. Please see Part V, B for updated criteria that will be used to evaluate these applications. See http://www.csrees.usda.gov/funding/integrated/integrated.html for additional information on integrated programs, including tips for writing integrated project proposals and a model proposal.

The programs that appear in the following table are soliciting integrated project applications in particular in FY 2007:

Program Code - Program Name

20.2 - Plant Biosecurity
23.1 - Managed Ecosystems
28.0 - Air Quality
31.0 - Bioactive Food Components for Optimal Health
31.5 - Human Nutrition and Obesity
32.1 - Epidemiological Approaches for Food Safety
41.0 - Animal Reproduction

42.0 - Animal Growth and Nutrient Utilization
43.0 - Animal Genome (A): Applied Animal Genomics
44.0 - Animal Protection and Biosecurity (B): Animal Well-Being
44.0 - Animal Protection and Biosecurity (C): Animal Biosecurity Coordinated Agricultural Projects (CAP)
51.9 - Biology of Weedy and Invasive Species in Agroecosystems
52.1 - Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP)
56.0 - Plant Biology (A): Gene Expression and Genetic Diversity
56.0 - Plant Biology (B): Environmental Stress
66.0 - Agricultural Prosperity for Small and Medium-Sized Farms
71.1 - Improving Food Quality and Value

Another type of integrated project grant is the Coordinated Agricultural Project (CAP) award. Applications for CAP awards will only be solicited by a very limited number of programs. CAP awards support large-scale multi-million dollar projects to promote collaboration, open communication, and the exchange of information; reduce duplication of effort; and coordinate activities among individuals, institutions, States, and regions. Project participants serve as a team that conducts targeted research, extension, and education in response to emerging or priority area(s) of National need. Applications articulate how a CAP award will complement and/or link with existing programs or projects at the National level. An integrated research, extension, and education CAP project contains the needed science based expertise as well as expertise from principal stakeholders and partners to accomplish project goals and objectives. Applications outline the potential of the project, the structure, coordination, and plan of implementation; and propose several research, extension, and education areas that will be addressed during the study period.

CAP awards are typically made as a continuation grant. A continuation grant is a grant instrument by which the USDA-CSREES agrees to support a specified level of effort for a predetermined period of time with a statement of intention to provide additional support at a future date, provided that performance has been satisfactory, appropriations are available for this purpose, and continued support would be in the best interest of the Federal government and the public.

In FY 2007, the Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP) is soliciting applications for new CAP projects. Please reference past CAP awards in this program for examples. In FY 2007, the Animal Protection and Biosecurity (C): Animal Biosecurity Coordinated Agricultural Projects (CAP) is soliciting a renewal application for the existing Avian Influenza CAP.

(b) Bridge Grants
Bridge grants are designed to assist small, mid-sized, and minority-serving institutions that have not previously been successful in obtaining competitive grants under subsection (b) of the Competitive, Special, and Facilities Research Grant Act (7 U.S.C. 450i(b)) (i.e. NRI). Bridge Grants provide funding to sustain and enhance important collaborations and activities with the goal of leading to future program success or success in obtaining other grants. A flow chart for determining applicant eligibility for bridge grants is provided at the end of this document in Figure 2. Institutions eligible for bridge grants will be considered for up to $100,000 if an Integrated Project Grant application is considered meritorious, but ranks below the funding cutoff during the peer review process.

Applicants may not apply directly for bridge grants. Bridge grants will be awarded only to eligible small- and mid-sized institutions and minority-serving institutions (as defined below) which are not among the most successful universities and colleges for receiving Federal funds for science and engineering research. See Table 3 at the end of this document for an alphabetical listing of the most successful institutions. Applicants in this category should indicate whether the institution qualifies as a small, mid-sized institution or a minority-serving institution (see Part VIII, H) and include the documentation requested below.

(1) Small and mid-sized institutions are academic institutions with a current total enrollment of 15,000 or less including graduate, undergraduate as well as full and part-time students. The institutions are not higher than the 50th percentile of academic institutions funded by the National Research Initiative Competitive Grants Program in the past three years and not within the top 100 Federally funded institutions. See Table 3

at the end of this document for an alphabetical listing of the most successful institutions for federal and NRI funding. Applicants applying under this category should indicate the current total enrollment of the institution in a cover letter. An institution in this instance is an organization that possesses a significant degree of autonomy. Other institutions or organizations involved in small- and mid-sized institution eligible projects need not meet the criteria described in the definitions for small- and mid-sized institution, but will not be eligible for bridge grant funds.

(2) Minority-serving institution means an academic institution whose enrollment of a single minority group or a combination of minority groups (as defined in Part VIII, H) exceeds 50 percent of the total enrollment, including graduate and undergraduate and full- and part-time students. Applicants applying under this category should indicate the current percentage of applicable minority students enrolled at the institution in a cover letter. An institution in this instance is an organization that possesses a significant degree of autonomy. Other institutions or organizations involved in minority-serving institution eligible projects need not meet the criteria described in the definitions for minority-serving institutions, but will be not be eligible for bridge grant funds.

D. The NRI and CSREES Strategic Planning

The NRI is moving to address priorities that support the objectives and goals identified in the CSREES Strategic Plan (http://www.csrees.usda.gov/about/offices/pdfs/csrees_stratic_plan.pdf). The CSREES plan has the following goals:

1. Enhance economic opportunities for agricultural producers;
2. Support increased economic opportunities and improved quality of life in rural America;
3. Enhance protection and safety of the Nation's agriculture and food supply;
4. Improve the Nation's nutrition and health; and
5. Protect and enhance the Nation's natural resource base and environment.

The CSREES plan is compatible with the goals of the USDA Strategic Plan[1] and is a dynamic working document that evolves in response to changes in National needs. Decisions about NRI priorities are also informed by stakeholder input, congruence with Presidential initiatives, and two recent reports from the National Academy of Sciences' Board on Agriculture (2000). These priorities are further designed to address the purposes of Section 401 of AREERA including all statutorily-identified critical emerging agricultural and rural issues, and priority mission areas (See Part I, A).

E. Program Opportunities

Please note that CSREES offers a number of programs that support research, education, and extension, or a combination thereof. Included in these offerings are the Integrated Research, Education, and Extension Competitive Grants Program and other programs that deal with biotechnology risk assessment and higher education. These programs provide funding for many topic areas related to, but not duplicative of, NRI programs. Applicants are encouraged to examine other CSREES program descriptions to find the most appropriate source of funding. Eligibility for these programs is noted in each RFA. RFAs can be accessed through the Agency's Web site (http://www.csrees.usda.gov/fo/funding.cfm).

The following specific program opportunities are provided as a base from which applications for Standard Projects, AREA, and Integrated Projects can be developed. These descriptions provide boundaries on the scope of each individual program. The NRI encourages submission of innovative projects that are "high-risk," as well as innovative applications with potential for more immediate application.

[1] The CSREES Strategic Goals listed in the FY 2007 NRI RFA are based on the FY 2002-2007 USDA Strategic Plan. In FY 2007, the USDA is updating its Strategic Plan to better address the Nation's knowledge of agricultural, environmental, nutritional, and rural issues (http://www.usda.gov/ocfo/usdasp/usdasp.htm). CSREES will revise its Strategic Goals to be compatible with the improved USDA Strategic Plan. The final version of the revised CSREES Strategic Goals may require slight modifications to the FY 2007 NRI RFA. This information will be posted as it becomes available.

Research projects addressing biological issues should focus on agriculturally important organism(s) to accomplish the research objectives. The use of other organisms as experimental model systems **MUST** be justified relative to the goals of the appropriate research program.

Note to multidisciplinary research teams: The NRI recognizes the value of research performed as a team effort and recommends the following be taken into consideration when assembling a project team and developing an application for funding. To be competitive, the number of objectives and the level of personnel involved in the application should be appropriate to the NRI program and to the activities proposed. A clear management strategy should be provided which identifies the contribution of each member of the team.

Agricultural Genomics and Biosecurity Program Cluster Overview

The Agricultural Genomics and Biosecurity program cluster primarily addresses CSREES' strategic goal ***to enhance protection and safety of the Nation's agriculture and food supply and to enhance economic opportunities for agricultural producers.*** It also supports CSREES' strategic goal of ***enhancing the Nation's natural resource base and environment.***

The Agricultural Genomics and Biosecurity program cluster provides a foundation to tackle new and re-emerging pathogens or pests of major economic significance in the U.S. and that threaten both industry viability and consumer access to safe and affordable food. These programs also contribute to an effective security program for animals and plants that will allow the Nation to respond effectively to the intentional or accidental entry of a foreign pathogen, pest, or other biological threat to the United States. Knowledge from this cluster also helps improve agricultural efficiency and sustainability, lower production costs, and aid the discovery of new and improved food and forest products for consumers as well as alternatives to pesticides and antibiotics to control disease outbreaks. Crop, forestry, and animal improvements are supported. Activities emphasize basic and applied research approaches as well as integrated research, education, and extension solutions for identified priorities.

Applications that include genome applications (e.g. genome sequencing, microarrays, etc.) should include a plan for timely dissemination of information and deliverables to a clearly identified community of users as well as to the scientific community as a whole. In addition to the scientific plan, applications should include a clear, complete, and workable plan for sharing results and management of intellectual property. The plan should be specific about the nature of the results to be shared, the timing and means of release, and constraints on release. Sequences (e.g. BAC end-sequencing, EST, cDNA libraries, etc.) must be released according to currently accepted community standards (e.g. Bermuda and Fort Lauderdale agreements, if applicable, see http://www.genome.gov/page.cfm?pageID=10506537) to public databases (GenBank if applicable, see http://www.ncbi.nlm.nih.gov/Genbank/index.html) as soon as their quality is checked. Applicants proposing microarray studies should include a statement addressing Minimum Information about Microarray Experiment compliance (MIAME if applicable, see http://www.mged.org). If the proposed project produces community resources (e.g. biological materials, germplasm, software, etc.), it is strongly encouraged that these resources be made publicly available as soon as their quality is verified. The resources produced must be available to all segments of the scientific community, including industry. The description should specifically describe what, how, and when the community would have public access to the outcome of the project. This is particularly important for the projects that will produce tangible research tools and resources.

In FY 2007, the NRI invites applications in the following programs related to Agricultural Genomics and Biosecurity:

20.2 Plant Biosecurity
43.0 Animal Genome
44.0 Animal Protection and Biosecurity
Formerly:
44.0 Animal Protection
20.1 Animal Biosecurity Coordinated Agricultural Projects (CAP)

51.0 Microbial Genomics
Formerly:
23.2 Microbial Genome Sequencing
45.0 Functional Genomics of Microbes
51.2 Arthropod and Nematode Biology and Management
Formerly:
51.2 Organismal and Population Biology of Arthropods and Nematodes
51.3 Suborganismal Biology and Genomics of Arthropods and Nematodes
51.8 Microbial Biology
Formerly:
23.3 Microbial Observatories
51.8 Biology of Plant-Microbe Associations
52.1 Plant Genome

Agricultural Genomics and Biosecurity Program Descriptions

20.2 Plant Biosecurity

Investigators are encouraged to contact National Program Leader(s) Dr. Liang-Shiou Lin (202-401-5042 or llin@csrees.usda.gov) or Dr. John L. Sherwood at (202-690-1659 or jsherwood@csrees.usda.gov) regarding questions about suitability of integrated activities. Proposed budget requests must not exceed $1 million (including indirect costs) for integrated projects for project periods of 2-4 years. Budget requests over $500,000 are expected to be multi-investigator and/or multi-institutional. Requests for funding above $1 million will be returned to the applicant without review. The total amount of support available for this program will be approximately $4 million. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, June 5, 2007.

Background

This program supports integrated projects aimed at ensuring a continued supply of safe, high-quality, affordable food and fiber for consumers in the U.S. and international trade partners. The goal of the program is to harness our Nation's scientific and technological resources to help agricultural producers and professionals implement strategies to safeguard agriculture in the U.S. from high-consequence plant diseases. To accomplish this, the program will focus on integrated research, education, and extension projects that counter threats to the agriculture system in the U.S., both by stepwise improvements to current responses and by development of innovative new capabilities.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are: provide the understanding and technologies needed to anticipate, deter, protect against, detect, mitigate, and recover from threats to the Nation's agricultural plant security; provide decision makers and responders with knowledge and decision support tools needed to anticipate, prevent, prepare for, and respond to agricultural threats of high-consequence plant pathogens; and enable strategies for control and elimination of high-risk plant pathogens.

FY 2007 Priority for Integrated Activities

1) Mitigation of diseases caused by *Phytopthora, Ralstonia, Xyella,* or *Liberobacter asiaticum* through extension/education programs to implement strategies resulting from, or developed in conjunction with, etiological and epidemiological investigations. These investigations should integrate disease outbreak and vector dispersal data with appropriate scale geographic information; and

2) Utilization and implementation of emerging technologies for field-based detection/diagnostic tools, and real time monitoring/diagnosis to facilitate mitigation of the establishment and spread of high consequence diseases.

Other Key Information

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management

and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

- The priorities for FY 2008 are expected to be programs on: 1) Utilization and implementation of emerging technologies for field-based detection/diagnostic tools, and real time monitoring/diagnosis that builds on whole genome sequences as available, to facilitate mitigation of the establishment and spread of specific pathogens of high consequence and importance that will be identified in the FY 2008 Request for Applications, and 2) Mitigation of diseases caused by high consequence/select agent pathogens through extension/education programs to implement strategies resulting from, or developed in conjunction with, etiological and epidemiological investigations.

43.0 Animal Genome

Investigators are encouraged to contact National Program Leader(s) Dr. Peter J. Burfening (202-401-5823 or pburfening@csrees.usda.gov) or Dr. Muquarrab Qureshi (202-401-4895 or mqureshi@csrees.usda.gov) regarding questions about suitability of research and integrated project topics. Approximately $1.5 million will be awarded to meritorious integrated projects and $4.5 million will be awarded to meritorious research projects. The total amount of support available for this program from CSREES will be approximately $6 million. Please review the program subsections for further funding information. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, June 5, 2007.

Overview

The Animal Genome program provides science-based knowledge and technologies to generate new or improved high-quality products/processes and to promote the efficiency of agricultural production systems. This information will also enhance protection and safety of the Nation's agriculture and food supply through development and delivery of information/technologies to genetically improve animals of agricultural importance. The result will be a reduction in the number and severity of animal disease outbreaks and a decreased dependence on the widespread use of antibiotics. This information will also contribute to protection and enhancement of the Nation's natural resource base and environment by increasing productivity while minimizing environmental consequences.

To meet these identified needs of agriculture, the long-term (10-year) goal for this program is to identify and utilize candidate genes for economically important traits that can be quickly tracked, monitored, or manipulated to improve animal health, product quality, production efficiency, and to make these technologies available to producers.

The Animal Genome program has four program elements: Animal Genome (A): Applied Animal Genomics, Animal Genome (B): Tools and Resources, Animal Genome (C): Bioinformatics, and Animal Genome (D): Functional Genomics. The Functional Genomics program element will not be offered in FY 2007, but will be offered in FY 2008.

43.0 Animal Genome (A): Applied Animal Genomics

Investigators are encouraged to contact National Program Leader(s) Dr. Peter J. Burfening (202-401-5823 or pburfening@csrees.usda.gov) or Dr. Muquarrab Qureshi (202-401-4895 or mqureshi@csrees.usda.gov). Proposed research project budget requests must not exceed $450,000 (including indirect costs) for up to 3 years in duration and proposed integrated project budget requests must not exceed

$550,000 (including indirect costs) for up to 4 years in duration. Requests for funding above $450,000 for research projects and $550,000 for integrated projects will be returned to the applicant without review. The total amount of support available for the Applied Animal Genomics program element will be approximately $3 million. This program element plans to make 8 to 10 awards. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, June 5, 2007.

Background

Applications should be developed with applied goals in mind, including acceleration of animal breeding, mapping and deployment of quantitative trait loci and markers in breeding programs, and molecular identification of beneficial alleles of any particular gene of agricultural significance.

FY 2007 Priorities for Research

1) Identification and mapping of molecular markers, including quantitative-trait loci (QTL) and economic trait loci (ETL) of importance to animals in agriculture, including aquaculture species;

2) SNP based cost-effective genotyping as it relates to animal identification and genetic diversity; and

3) Development and application of methods to modify the animal genome (e.g. RNAi, nuclear transfer, embryonic stem cells, and transgenics).

FY 2007 Priority for Integrated Activities

1) Implementation of programs to manipulate and manage the animal's genome through the application of new genomic technology. These projects are aimed at developing the research needed to fill critical knowledge gaps and innovative extension programming necessary to enable stakeholders to manipulate and manage the animal's genome through the use of molecular markers, including quantitative-trait loci (QTL), economic trait loci (ETL), SNPs, and/or whole animal genotypes. The results of these research and extension programs should be aimed at genetically improving animal health, product quality, and/or production efficiency for animals of agricultural importance. Projects need to lead to measurable changes in the ability of the identified audience or stakeholder group to be able manipulate and manage the animal's genome.

Other Key Information - Applied Animal Genomics

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan, and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- It is anticipated that integrated applications will contain strong extension and research components supported by the application budget.

- All model systems (especially the use of laboratory animals, cell cultures, etc.) must be thoroughly justified in terms of the program guidelines and relevance to U.S. animal agriculture. This program will no longer accept applications whose studies primarily utilize non-agricultural or non-aquacultured species as animal models.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

43.0 Animal Genome (B): Tools and Resources

Investigators are encouraged to contact National Program Leader(s) Dr. Peter J. Burfening (202-401-5823 or pburfening@csrees.usda.gov) or Dr. Muquarrab Qureshi (202-401-4895 or mqureshi@csrees.usda.gov). Proposed budget requests must not exceed $1million (including indirect costs) for up to 4 years in duration. Requests for funding above $1 million will be returned to the applicant without review. The total amount of support available for the Tools and Resources program element will be approximately $1.5 million. This program element plans to make 1 or 2 awards. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, June 5, 2007.

Background

The Tools and Resources program element will emphasize the development of basic tools and resources to accelerate research in agricultural animal genomics. The goal is to develop state-of-the-art tools and resources that will advance the understanding of animal genomes in terms of organization and function.

FY 2007 Priorities for Research

1) The generation of EST libraries and targeted genome sequences for animals of agricultural importance, including aquaculture species, where either the whole genome sequence is not available or EST libraries do not exist;

2) Generation of comparative maps (contig maps and high density linkage maps) for use in comparative genomics; and

3) Development of high density SNP maps where these do not already exist.

Other Key Information - Tools and Resources

- Applicants must demonstrate that they can apply the most recent technologies to the production of these tools and resources and that they will adequately and efficiently store and distribute the tools and resources once they are available. A description of quality control measures must be included in the application.

- Investigators applying under this program element must make a strong case that the tools and resources are needed by the community of scientists involved and that they do not duplicate resources available elsewhere.

- Investigators are encouraged to develop national and international collaborations with research groups already working on the species of interest to minimize duplication of effort and maximize cost effectiveness.

- All model systems (especially the use of laboratory animals, cell cultures, etc.) must be thoroughly justified in terms of the program guidelines and relevance to U.S. animal agriculture. This program will no longer accept applications whose studies primarily utilize non-agricultural or non-aquacultured species as animal models.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

43.0 Animal Genome (C): Bioinformatics

Investigators are encouraged to contact National Program Leader(s) Dr. Peter J. Burfening (202-401-5823 or pburfening@csrees.usda.gov) or Dr. Muquarrab Qureshi (202-401-4895 or mqureshi@csrees.usda.gov). Proposed budget requests must not exceed $1 million (including indirect costs) for up to 4 years in duration. Requests for funding above $1 million will be returned to the applicant without review. The total amount of support available for the Bioinformatics program element will be approximately $1.5 million. This program element plans to make 1 or 2 awards. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, June 5, 2007.

Background
The Bioinformatics program requests applications for the development of bioinformatic tools that will assist in functional genomics, annotation and comparative genomics, and use of genomic data in genetic improvement programs of agriculturally important animals. These tools need to be designed to integrate with existing data/databases (not create new ones), serve as tools for genome analysis, provide for practical applications of genomic data, and have a biological framework.

FY 2007 Priorities for Research

1) Tools that integrate genome sequence, genome annotations and pedigree information with biological function, and phenotypic information for a single species or across multiple species;

2) Animal bioinformatics tools to efficiently and effectively handle and interpret the genomic/genetic data being generated to accelerate the knowledge discovery process. (Examples include technology platforms, computational resources and analytical tools for integrative and comparative research); and

3) Development of tools to incorporate the use of genomic data (i.e. SNPs, haplotypes, and/or whole animal genotypes) in genetic evaluations.

Other Key Information – Bioinformatics

- Bioinformatics tools should provide for all or part of the following:
  (1) Data collection protocols (i.e. laboratory information management)
  (2) Curation protocols (quality assessment and quality control)
  (3) Procedures for archiving of data to prevent accidental loss
  (4) Protocols and policies related to release of data and submission of raw and processed data to public database
  (5) Data warehousing for online-access (including web-interfaces and bulk download capability)

- Investigators applying under this program element must make a strong case that the tools are needed by the community of scientists involved and that they do not duplicate resources available elsewhere.

- All model systems (especially the use of laboratory animals, cell cultures, etc.) must be thoroughly justified in terms of the program guidelines and relevance to U.S. animal agriculture. This program will no longer accept applications whose studies primarily utilize non-agricultural or non-aquacultured species as animal models.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

43.0 Animal Genome (D): Functional Genomics
The Functional Genomics portion of the Animal Genome Program will not be offered in the FY 2007. This program is offered in alternate years and will be accepting applications again in FY 2008 at the anticipated level of $6 million. For additional information on the program, please contact National Program Leader Dr. Peter J. Burfening (202-401-5823 or pburfening@csrees.usda.gov).

44.0 Animal Protection and Biosecurity

Investigators are encouraged to contact National Program Leader(s) Dr. Peter Johnson (202-401-1896 or pjohnson@csrees.usda.gov) or Dr. Peter Brayton (202- 401-4399 or pbrayton@csrees.usda.gov) for program element A, Dr. Peter Brayton (202- 401-4399 or pbrayton@csrees.usda.gov) for program element B, and Dr. Peter Johnson (202-401-1896 or pjohnson@csrees.usda.gov) for program element C regarding questions about suitability of research topics and integrated activities. The total amount of support available for this program from CSREES will be approximately $17 million. Please review the program subsections for further funding information.

Overview
This program supports research and integrated projects ranging from fundamental science to practical application for the protection and well being of agriculturally important animal species, including equine and aquaculture species. The ultimate goal of the program is to contribute knowledge about agriculturally important animal diseases so that their severity and economic impacts are eliminated or reduced. A second goal is to contribute knowledge that will improve the well being of agriculturally important animals.

The Animal Protection and Biosecurity Program has three program elements: Animal Protection and Biosecurity (A): Animal Disease; Animal Protection and Biosecurity (B): Animal Well-Being; and Animal Protection and Biosecurity (C): Animal Biosecurity Coordinated Agricultural Project (CAP).

44.0 Animal Protection and Biosecurity (A): Animal Disease
Investigators are encouraged to contact National Program Leader(s) Dr. Peter Johnson (202-401-1896 or pjohnson@csrees.usda.gov) or Dr. Peter Brayton (202- 401-4399 or pbrayton@csrees.usda.gov). Proposed budget requests must not exceed $375,000 (including indirect costs) for project periods of 2-4 years. Requests for funding above $375,000 will be returned to the applicant without review. The total amount of support available for the Animal Disease program element will be approximately $10 million. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, November 29, 2006.

Background
The Animal Disease section of the Animal Protection program focuses on high priority diseases of economic importance to U.S. animal agriculture, including equine and aquaculture species. This emphasis will increase the knowledge and technology needed to prevent or reduce the severity of animal diseases. It will also contribute to an increase in the efficiency of animal production systems, a reduction in non-tariff trade barriers, and high-quality safe foods for consumers. The program addresses a major limiting factor in animal agriculture: insufficient basic and applied information about diseases in animals of agricultural importance. This knowledge gap seriously impedes a major reduction in costly economic losses from animal diseases that are already present in the United States. Information gaps also jeopardize food security and the future viability of animal industries by increasing their vulnerability to pathogens, which may establish new niches or undergo genetic mutations resulting in new and re-emerging diseases that may be accidentally or intentionally introduced.

FY 2007 Priorities for Research

1) Species Specific High Priority Areas
   (a) Aquaculture: *Edwardsiella ictaluri*; *Flexibacter columnaris*; *Flavobacterium psychrophilum*;
   (b) Equine: Laminitis; *Streptococcus equi* (strangles); *Rhodococcus equi*;
   (c) Poultry: Avian *Clostridium perfringens*; Marek's Disease; Avian pneumovirus
   (d) Ruminants: Bovine viral diarrhea; Bovine & ovine respiratory disease complex; Infectious causes of dairy cattle mastitis; Johne's Disease; and
   (e) Swine: Porcine Reproductive and Respiratory Syndrome (PRRS); Post-weaning *E.coli* diarrhea; Swine Influenza;

2) Non-Species Specific High Priority Areas
   (a) Diseases that may be introduced to livestock through interactions with wildlife (including chronic wasting disease) with a required emphasis on the interface between livestock and the relevant wildlife species (model species are not appropriate);

   (b) Foreign Animal Diseases (limited to: Foot and Mouth Disease, Avian Influenza, Exotic Newcastle Disease, Vesicular Stomatitis Virus, or Classical Swine Fever);

   (c) Basic or applied immunology applications that do not include work with a specific disease are also considered a high priority if the Project Director justifies the work's potential for broad applicability to multiple diseases. A basic immunology approach (that seeks to develop a novel vaccine or control strategy) may propose to work with a disease agent other than one of the high priority agents listed above only if the project director provides convincing justification in the Project Description that the outcome will be broadly applicable beyond that single agent. Applications that address antimicrobial peptides are encouraged; and

3) High priority focus areas include: pathogen biology; mechanisms of host/pathogen interactions; immunology; etiology, control, epidemiology and ecology. *NOTE: Applications that develop new or improved diagnostic tests are expected to include an appropriate validation plan.*

Other Key Information – Animal Disease

- Inclusion of power analyses is required if the project uses experimental animals.

- Applications that address Avian Influenza, Johne's Disease, and Porcine Reproductive and Respiratory Syndrome (PRRS) remain a high priority for funding within the Animal Protection Program which seeks to support and strengthen efforts initiated under Coordinated Agricultural Projects (CAPs). Applications on Avian Influenza, Johne's Disease, or Porcine Reproductive and Respiratory Syndrome (PRRS) are expected to document in the Project Description: (1) how the proposed work fits within the framework of the community objectives established for the CAPs for each of those areas; (2) the Project Director is not already funded by the CAP for the specific proposed objectives; and (3) the Project Director will participate in reporting and coordination activities associated with those projects. Project Directors submitting applications on those three diseases who are not already affiliated with those projects should consult the websites established for these community efforts (Avian Influenza: http://www.agnr.umd.edu/aicap; Johne's Disease: http://www.jdip.org; PRRS: http://www.prrs.org).

- Surveillance as a principal objective is not suitable for this program.

- The program encourages applicants to take advantage of genomic approaches (e.g. functional genomics, and proteomics) in order to accelerate the discovery of new targets for diagnostics, vaccines, and treatments. The program supports international efforts to better capture the current and future value of microarray data. If proposing microarray studies, applicants are required to include a statement addressing Minimum Information About Microarray Experiment (MIAME) compliance (see, http://www.mged.org). Applicants must aim to release the results of their research to the public in a timely manner.

- Animal genetics applications (e.g. applications with a primary focus on identifying, isolating, and characterizing the genetic basis for disease resistance in the host animal) should consider submission to the Animal Genome Program (43.0). NOTE: Immunogenetics applications should consider submission to the Animal Genome Program (43.0).

- Vaccine development applications that may approach or enter the commercialization stage are also encouraged to explore the USDA/SBIR (Small Business Innovation Research Program) for possible funding. The RFA for that program is available at http://www.csrees.usda.gov/funding/sbir/sbir.html.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

44.0 Animal Protection and Biosecurity (B): Animal Well-Being

Investigators are encouraged to contact National Program Leader Dr. Peter Brayton (202- 401-4399 or pbrayton@csrees.usda.gov). Proposed research project budget requests for Animal Well-Being must not exceed $375,000 (including indirect costs) for project periods of 2-4 years. Proposed integrated project budget requests for Animal Well-Being must not exceed $400,000 (including indirect costs) for project periods of 2-4 years. Requests for research funding above $375,000 will be returned to the applicant without review. Requests for integrated funding above $400,000 will be returned to the applicant without review. The total amount of support available for Animal Well-Being projects will be $2 million with $1 million for research projects and $1 million for integrated activities. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, November 29, 2006.

Background

The Animal Well-Being element of the Animal Protection and Biosecurity program focuses on enhancing animal well-being throughout the food production cycle. This program will provide information on how animals of

agricultural importance in the U.S. interact with the production environment and respond to animal management practices. Where appropriate, management practices will be developed that improve animal well-being. Such knowledge is needed to remain competitive globally and to maintain consumer trust through science-based studies. Research to ensure animal well-being may also help decrease animal management and health-care costs. This area addresses agricultural food security by helping to assure continued access of U.S. animal products to national and international markets.

FY 2007 Priority for Research

1) Develop science-based criteria to standardize measurements of well-being, including pain, stress, fear, and behavioral needs, and the assessment of how these conditions impact animal well-being.

FY 2007 Priority for Integrated Activities

1) Develop, test, and recommend alternative management practices for animal well-being and adaptability, including housing, handling, transportation, and harvest (for example, gas stunning/slaughter procedures for food animals).

Other Key Information – Animal Well-being

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- Both basic and applied research applications are solicited that contribute to the development of long-term management options and/or short-term production practices that assure animal well-being. Multi-disciplinary approaches are encouraged.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

44.0 Animal Protection and Biosecurity (C): Animal Biosecurity Coordinated Agricultural Projects (CAP)
Investigators are encouraged to contact National Program Leader Dr. Peter Johnson (202-401-1896 or pjohnson@csrees.usda.gov). Proposed budget requests must not exceed $5 million (including indirect costs) for integrated projects for project duration of 3 years. Requests for funding above $5 million will be returned to the applicant without review. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, August 14, 2007.

Background

Strengthening the Nation's capacity to protect animal agriculture from disease losses and threats arising from high impact endemic diseases, new or re-emerging challenges, or foreign diseases accidentally or intentionally introduced, is a major challenge facing the United States. The Animal Biosecurity CAP Program was initiated in FY 2004 and serves as a catalyst to bring the larger animal health community together for specific diseases or issues. The result will better integrate, coordinate, and complement current and future programs or projects related to that area, beyond just those objectives supported by an Animal Biosecurity award. The program develops and delivers science-based information and technologies to reduce the number and severity of agricultural disease outbreaks. Studies of zoonotic diseases (such as Avian Influenza) also benefit public health.

To meet these identified needs of agriculture, the long-term (10-year) goal for this program is to implement biosecurity protocols on a national scale for program-identified issues that detect, contain, minimize, and eliminate spread of diseases from animal to animal, site to site, and animal to human (where applicable). This will include improving the management of program-identified animal diseases that represent a threat to animal production, biosecurity, and public health. It will also include major progress towards diminishing the economic impact of animal diseases, and/or eradicating selected diseases, or preventing disease introduction into the United States.

FY 2007 Priority for Integrated Activities

1) This program only invites a renewal application for the existing Coordinated Agricultural Project (CAP) for Avian Influenza.

Other Key Information

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- This program seeks to initiate or maintain CAPs that develop integrated (Research, Education, and Extension), community approaches for a limited number of program-identified diseases or issues.

  Specifically, this may include:
  1) Community products such as:
     (a) Development and/or updating of community roadmaps including gap analysis;
     (b) Standardized protocols for various areas (e.g. diagnostics, vaccine trials, animal studies, and genetic resistance studies.);
     (c) Sample repositories and databases, including surveillance activities;
     (d) Genomics/proteomics tools, reagents, and protocols (e.g. mutants; arrays; clone sets; immunological typing of animals; bioinformatics tools and services); or
     (e) Extension and communication programs (e.g. training tools, demonstrations, conferences, continuing education, publications, and websites);

  2) Leveraging and coordinating project resources with other USDA and non-USDA efforts for the same area;

  3) Filling critical knowledge gaps (e.g. pathogen biology; mechanisms of host/pathogen interactions; epidemiology; effective communication protocols), including the exploration of some high-risk approaches; the award size is not sufficient to support all needed research, some of which is leveraged and supported by other programs; and

  4) Piloting the implementation of new disease control strategies and tools (e.g. vaccines; new or improved diagnostics and detection systems; preventatives; producer outreach programs for the adoption of improved biosecurity measures and awareness).

A Renewal application should:

1) Summarize originally funded research, education, and extension project objectives and describe progress to date, including milestones achieved for each objective;

2) Document stakeholder/partner assessment of project impact;

3) Outline research, education, and extension activities proposed for a renewal period, including a discussion of how the proposed activities support the Animal Biosecurity Program's long-term objectives;

4) Propose a maximum budget of $1.66 million per year for up to 3 years (up to $5.0 million total);

5) Summarize and assess project management and structure to date, including interactions among project participants (e.g. project director, co-project directors, collaborators, advisory board(s), other relevant partners and stakeholders); and

6) Describe proposed changes in project management (if any).

If a competitive renewal is received by the Avian Influenza CAP, the program anticipates that a second competitive renewal would not be solicited. Instead, the program would initiate a focused effort for another high impact disease or issue. Therefore, renewal applications should also articulate an exit strategy or an alternative self-sustaining strategy from continued Animal Biosecurity Program support as a multi-million dollar CAP beyond a 6 year total lifetime.

51.0 Microbial Genomics

Investigators are encouraged to contact National Program Leader(s) Dr. Ann Lichens-Park (202-401-6460 or apark@csrees.usda.gov) or Dr. Daniel Jones (202-401-6854 or djones@csrees.usda.gov) for program element A and Dr. Ann Lichens-Park (202-401-6460 or apark@csrees.usda.gov) for program element B regarding questions about suitability of research topics. The total amount of support available for the two program elements in FY 2007 is approximately $11 million. Please see individual program elements for additional funding information and Program Deadline information.

Overview

The Microbial Genomics program is part of the larger effort at CSREES to use the understanding of the biological role of gene sequences and gene expression to address the CSREES strategic goals to enhance economic opportunities for agricultural producers and to enhance the protection and safety of the Nation's agriculture and food supply. Investment in microbial genomics has and will continue to enable improvements in the quality of agricultural commodities and products and the realization of more efficient and sustainable production practices. Public investment in genome sequencing of agriculturally relevant microbial species will result in improved traits of commodities and more efficient breeding programs; discovery and utilization of microbes to enhance innate properties of agriculturally important organisms; improved animal and plant production and protection; and facilitate better stewardship of land, air and water resources.

The Microbial Genomics Program consists for two program elements: 51.0 Microbial Genomics (A): Genome Sequencing and 51.0 Microbial Genomics (B): Functional Genomics of Microorganisms.

51.0 Microbial Genomics (A): Genome Sequencing

Investigators are encouraged to contact National Program Leader(s) Dr. Ann Lichens-Park (202-401-6460 or apark@csrees.usda.gov) or Dr. Daniel Jones (202-401-6854 or djones@csrees.usda.gov). Proposed budget request should not exceed $2.5 million (including indirect costs) for research project periods of up to 3 years. The total amount of support available for this program from CSREES will be approximately $5 million. This program element is in partnership with the National Science Foundation (NSF). Please note that proposals submitted for review in this program element must be submitted through NSF in accordance with submission instructions outlined in the separate program solicitation for the FY 2007 NSF/USDA-CSREES Microbial Genome Sequencing Program. Visit the program website (see http://www.csrees.usda.gov/fo/microbialgenomesequencingnri.html) *for detailed application submission and project deadline information.*

Background

The availability of genome sequences provides the foundation for understanding how microorganisms function and live, and how they interact with their environments and with other organisms. The sequences are expected to be

available to and used by a community of investigators to address issues of scientific and societal importance including:

- Novel aspects of microbial biochemistry, physiology, metabolism, development and cellular biology;
- The diversity and the roles microorganisms play in complex ecosystems and in global geochemical cycles;
- The impact that microorganisms have on the productivity and sustainability of agriculture and natural resources (e.g., forestry, soil and water), and on the safety and quality of the nation's food supply; and
- The organization and evolution of microbial genomes, and the mechanisms of transmission, exchange and reshuffling of genetic information.

51.0 Microbial Genomics (B): Functional Genomics of Microorganisms
Investigators are encouraged to contact National Program Leader Dr. Ann Lichens-Park (202-401-6460 or apark@csrees.usda.gov). Proposed budgets must not exceed $1 million (including indirect costs) for research projects for periods up to four years. Requests for funding above $1 million will be returned to the applicant without review. The total amount of support available for this program will be approximately $6 million. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, June 5, 2007.

Background
The Functional Genomics program element of the Microbial Genomics Program increases the understanding of the biological role of gene sequences in agriculturally important microorganisms and links these sequences to physiological functions or agricultural and food processes involving microbes. The goal of the program is to support large-scale functional analysis of genomic sequences of agriculturally relevant microbes.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are to increase the ability to manipulate microorganisms to benefit U.S. agriculture, based on improved understanding of microbial processes, create faster more accurate and cost-effective detection and diagnosis of plant and animal pathogens, and improve methods of managing plant and animal pathogens and other agriculturally relevant microbes.

FY 2007 Priorities for Research

1) Characterization of mechanisms of pathogenicity by microorganisms;

2) Characterization of mechanisms of non-pathogenic interactions between microbes or between microbes and their hosts; and

3) Characterization of mechanisms used by microorganisms to survive or respond to environmental changes.

Other Key Information

- The microbe(s) of study must be of importance to U.S. agriculture. Projects are expected to utilize current and emerging high-throughput technologies such as microarrays and/or proteomics to analyze the spatial and/or temporal expression of sets of genes and/or proteins.
- Projects are also expected to identify genes expressed or proteins present under different environmental conditions or as part of particular metabolic or regulatory pathways. If proposing microarray studies, applicants are strongly encouraged to include a statement addressing Minimum Information About Microarray Experiment (MIAME) compliance, see www.mged.org. Applications involving the development of microarrays should include plans for distributing the arrays as a community resource. Collaboration with international partners is appropriate; however, applications must be submitted by eligible U.S. institutions.
- Research in this area should address the characterization of the molecular mechanisms responsible for microbial processes enabled by the availability of a sequenced microbial genome or genomes.

- Research activities should characterize, on a large scale, the function of genes or networks of genes in microbe(s) having a completely, or almost completely, sequenced genome.

- Information (e.g. Web site addresses) necessary to access publicly available genomic sequence data of such microbe(s) should be provided in the Project Description portion of the application. Explain in the Project Description if the sequence data is not publicly available or there are restrictions on its availability.

- This program will not support whole genome sequencing of microbes. Such studies should be submitted to the FY 2007 NSF/USDA-CSREES Microbial Genome Sequencing Program through NSF in accordance with submission instructions outlined in the program solicitation available at http://www.csrees.usda.gov/fo/microbialgenomesequencingnri.html.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

51.2 Arthropod and Nematode Biology and Management

Investigators are encouraged to contact National Program Leader Dr. Mary Purcell-Miramontes (202-401-0222 or mpurcell@csrees.usda.gov) regarding questions about suitability of research topics. The total amount of support available for this program from CSREES will be approximately $12.4 million. Please see individual program elements for additional funding information and Program Deadline information.

Overview

The intentional or accidental introduction of arthropod or nematode pests into the U.S. is a major threat to the security of agricultural systems, our food supply, and communities. To combat these threats, conventional agricultural chemicals are still the primary means to control arthropod and nematode pests, despite concerns about adverse effects on public health, non-target organisms, and natural resources. Environmentally safer alternatives have been developed in some systems, such as the use of biological control organisms (parasites, predators, and microbes), semiochemicals, resistant plant varieties, and genetically modified crops that resist attack by pests, but fundamental knowledge of arthropod and nematode biology, which could lead to better usage of these alternatives or novel approaches to control, is still lacking in many areas. In addition, growing demands for organically-grown commodities in the U.S. has led to increased needs for biologically-based approaches to managing pests. Also, the use of pollinators could be greatly expanded if the mechanisms which affect foraging, reproduction, and diseases threatening efficient production were better understood.

To meet these identified needs of agriculture, the long-term (10-year) goals of this program area are to a) improve our understanding of the biotic and abiotic factors associated with establishment and spread of pests and beneficial species; b) develop the scientific and technological framework for environmentally sound pest management strategies. Examples of promising outcomes include genetically modified arthropods or nematodes for pest control, improved utilization of biological control organisms, development of novel pheromone blends, and/or biologically-based pesticides.

All three program elements in the Arthropod and Nematode Biology and Management Program area support research in the following systems: Horticultural and field crops, forests, rangelands, urban landscapes, livestock, and food or feed transported and stored for human consumption. Pest organisms are limited to insects, mites, ticks, plant-parasitic nematodes, mollusks, and weeds (in the context of biological control of weeds and where the focus is on the biological control agent). Beneficial species include biological control organisms (e.g. insects, microbes, or nematodes) of the above pests and pollinators. Arthropods, which vector plant or livestock diseases important to agriculture, are also appropriate.

The Arthropod and Nematode Biology and Management Program Area consists of three program elements: Arthropod and Nematode Biology and Management (A): Organismal and Population Biology; Arthropod and Nematode Biology and Management (B): Suborganismal Biology; and Arthropod and Nematode Biology and Management (C): Tools, Resources, and Genomics.

51.2 Arthropod and Nematode Biology and Management (A): Organismal and Population Biology

Investigators are encouraged to contact National Program Leader Dr. Mary Purcell-Miramontes (202-401-0222 or mpurcell@csrees.usda.gov). Proposed budget requests must not exceed $350,000 for single institutional projects and $400,000 for multi-institutional or multidisciplinary projects (including indirect costs) for project periods of 2-4 years. Requests for funding above $350,000 for single institutional projects and $400,000 for multi-institutional or multidisciplinary projects will be returned to the applicant without review. The total amount of support available for this program will be approximately $5.8 million. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, January 17, 2007.

Background

The Organismal and Population Biology element of the Arthropod and Nematode Biology and Management program will support fundamental and applied research at the organismal and population level to address the problem of managing invasive and re-emerging pests and enhancing use of beneficial organisms.

FY 2007 Priorities for Research

1) Determine chemical-ecological or physiological mechanisms which affect abundance of pests or beneficial species;

2) Characterize ecological and population genetic processes which affect establishment and spread of arthropod or nematodes; and

3) Elucidate ecological interactions between pests, beneficial organisms, diseases or disorders associated with arthropod or nematodes.

Other Key Information

- Proposed studies must include a justification for how anticipated results will be relevant (either in the long or short-term) to future management programs, reducing stress on plants, livestock, or increasing security of agricultural, rural communities, or urban landscapes.

- Applications that focus on gene identification, expression and regulation, biochemical or physiological mechanisms should be submitted to the Arthropod and Nematode Biology and Management (B): Suborganismal Biology or the Arthropod and Nematode Biology and Management (C): Tools, Resources, and Genomics program elements. Applicants whose projects focus on studies assessing or managing the environmental risk of introducing transgenic organisms are advised to consult with program leaders of the USDA-CSREES Biotechnology Assessment Research Grants Program. Applicants submitting Integrated projects (combining research with extension or educational activities) are advised to consult with program leaders of other pest management grant programs in CSREES, such as Regional Integrated Pest Management (rIPM), Crops at Risk (CAR), Risk Avoidance and Mitigation Program (RAMP), or the Organic Transitions (ORG) program. For additional information, please visit http://www.csrees.usda.gov/fo/funding.cfm.

- The Project Description portion of the application must include a section providing a clear justification for the system studied, in terms of economic and/or societal benefit to agriculture and rural communities. Studies of model systems may be submitted to the program only if knowledge gained is applied to systems of economic or societal importance within the submitted project.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

51.2 Arthropod and Nematode Biology and Management (B): Suborganismal Biology

Investigators are encouraged to contact National Program Leader Dr. Mary Purcell-Miramontes (202-401-0222 or mpurcell@csrees.usda.gov). Proposed budget requests must not exceed $400,000 (including indirect costs) for project periods of 2-4 years in duration. Requests for funding above $400,000 will be returned to the applicant without review. The total amount of support will be approximately $3.6 million. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time June 5, 2007.

Background
The Suborganismal Biology element of the Arthropod and Nematode Biology and Management program supports fundamental and applied research at the cellular and molecular levels to address the problem of managing invasive and re-emerging pests and the Nation's over-dependence on harmful pesticide applications. Advances in the molecular genetics, physiology, biochemistry and genomics of arthropods and nematodes are poised to provide novel solutions to these problems which threaten the nation's food supply and natural resources.

FY 2007 Priorities for Research

1) Characterization of digestive physiology, endocrine, neurophysiological or biochemical processes of arthropods and nematodes;

2) Understanding at the cellular, biochemical and molecular level interactions of arthropods or nematodes with associated organisms (e.g., host plants, livestock, microbes or beneficial organisms); and

3) Elucidation of the mechanism of action of novel targets for pest control, including semiochemicals and fundamental pesticide resistance studies.

Other Key Information

- Proposed studies must include a justification for how anticipated results will be relevant (either in the long or short-term) to future management programs, reducing stress on plants, livestock, or increasing security of agricultural, rural communities, or urban landscapes.

- The Project Description portion of the application must include a section providing a clear justification for the system studied, in terms of economic and/or societal benefit to agriculture and rural communities. Studies of model systems may be submitted to the program only if knowledge gained is applied to systems of economic or societal importance within the submitted project.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

51.2 Arthropod and Nematode Biology and Management (C): Tools, Resources, and Genomics
Investigators are encouraged to contact National Program Leader Dr. Mary Purcell-Miramontes (202-401-0222 or mpurcell@csrees.usda.gov). Proposed budget requests for tool development and bioinformatics (priorities 1 and 2) will not exceed $500,000 (including indirect costs) for project periods of 2-4 years. Proposed budget requests for functional genomics (priority 3) will not exceed $750,000 (including indirect costs) for project periods of 2 years. Requests for funding above $500,000 for tool development and bioinformatics proposals and $750,000 for functional genomics proposals will be returned to the applicant without review. The total amount of support available will be approximately $3 million. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time June 5, 2007.

Background
The Tools, Resources and Genomics element of the Arthropod and Nematode Biology and Management program will support research to better develop genomic resources, tool development and fundamental knowledge about the functions of genes for arthropods and nematodes of agricultural importance.

FY 2007 Priorities for Research

1) Develop innovative approaches for mapping, identification, and expression of genes (e.g. genetic and physical maps, ESTs, cDNAs, BAC libraries, markers, FISH, micro-arrays, SAGE, etc.) to enable future studies on genome organization and lead to hypothesis testing research;

2) Generate bioinformatic tools to manage and interpret sequence data for arthropods or nematodes having a completely or almost completely sequenced genome (e.g. analytical tools for integrative and comparative genomics, technology platforms, computational resources); and

3) Characterize on a large scale, the function(s) of genes or networks of genes of arthropods or nematodes having a completely or almost completely sequenced genome.

Other Key Information

- Applicants must budget for and demonstrate an adequate and efficient storage and distribution of tools and resources once they are available. A description of quality control measures must be included.

- Applicants must include a budgeted plan for the release of research results to the public in a timely manner. All sequence and expression data must be released to public repositories (e.g. GenBank, compliance with Minimum Information for Microarray Experiment [MIAME], etc.). All phenotype and map data should be deposited into an appropriate public database (e.g. major community databases, etc.) in a timely manner after completion of quality control tests. Arrangements must be documented in the application.

- Applications for research focusing on physiological ecology, population genetics (including molecular approaches to study population genetics), and behavior of arthropods and nematodes should consider submission to the Arthropod and Nematode Biology and Management (A): Organismal and Population Biology Program Element. Applicants focusing primarily on genetics and genomics of plants, livestock animals or microbes are advised to consult the respective National Program Leaders for Plant Biology: Gene Expression and Genetic Diversity, Plant Genome, Animal Genome, Microbial Biology, or Microbial Genomics programs.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

51.8 Microbial Biology

Investigators are encouraged to contact National Program Leader Dr. John L. Sherwood (202-690-1659 or jsherwood@csrees.usda.gov) for program element A and Dr. Ann Lichens-Park (202-401-6460 or apark@csrees.usda.gov) for program element B regarding questions about suitability of research topics. The total amount of CSREES support available for the two program elements in FY 2007 is approximately $7.4 million. Please see individual program elements for additional funding information and Program Deadline information.

Overview

Microorganisms have a tremendous impact on the productivity and profitability of U.S. agriculture. Microorganisms associated with plants and animals may increase productivity, cause disease and/or affect the safety and quality of the nation's food supply. We are now learning that understanding both the interaction of individual microbes with their host and how communities of microbes prosper are needed to elucidate the mechanisms by which microbes impact agricultural production.

These programs enhance the protection and safety of the Nation's agriculture and food supply. More specifically, through science-based knowledge and education, information and technologies are developed and delivered that reduce the incidence of foodborne illnesses and contaminants and reduce the number and severity of agricultural pest and disease outbreaks. Aspects of these programs also enhance economic opportunities for agricultural producers and protect the Nation's natural resource base and environment.

The Microbial Biology Program consists of two program elements: Microbial Biology (A): Microbial Observatories and Microbial Biology (B): Biology of Plant-Microbe Associations.

51.8 Microbial Biology (A): Microbial Observatories

Investigators are encouraged to contact National Program Leader Dr. John L. Sherwood (202-690- 1659 or jsherwood@csrees.usda.gov). Awards from this program are expected to range between $500,000 and $2,000,000 (including indirect costs) for project periods of 2-4 years. The total amount of support available from both NSF and USDA-CSREES for this program will be approximately $4.5 million, of which approximately $2.0 million will be provided by USDA-CSREES. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, October 9, 2006 following NSF guidelines. See the NSF Web site (www.nsf.gov) for detailed application submission guidelines.

Background
Microorganisms are critical to the productivity and sustainability of agricultural ecosystems. They can be detrimental (e.g. by causing disease) or beneficial (e.g. by reducing the incidence of disease or by contributing to nutrient cycling). Methods of managing agricultural systems can significantly impact microbial community composition and functioning. Very little is currently known about the extent and significance of such impacts.

CSREES, in partnership with the National Science Foundation, has announced an expanded competitive grants program on Microbial Observatories. This program will now support research to discover and characterize novel microorganisms and microbial communities and to study their roles in agriculturally relevant environments. Additional information regarding this program has been released as a separate program announcement. Please visit: www.csrees.usda.gov/fo/microbialobservatoriesnri.html.

51.8 Microbial Biology (B): Biology of Plant-Microbe Associations
Investigators are encouraged to contact National Program Leader Dr. Ann Lichens-Park (202-401-6460 or apark@csrees.usda.gov). Proposed budget requests must not exceed $400,000 (including indirect costs) for project periods of 2-4 years. Requests for funding above $400,000 will be returned to the applicant without review. The total amount of support available for this program will be approximately $5.4 million. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, December 14, 2006.

Background
Unlocking the information in microbial genomes is essential to understanding the molecular mechanisms underlying agriculturally relevant processes in microbes and managing microorganisms for the benefit of U.S. agriculture. These processes include pathogenicity, disease suppression by biological control agents, and mechanisms of microbial communication. This program supports fundamental hypothesis-driven research on the interactions between plants and their associated microorganisms. The program encourages application of knowledge gained to systems of economic importance to U.S. agriculture or of importance to agricultural sustainability.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are: improved resistance to high-impact plant diseases based on knowledge of plant pathogens, their plant hosts, and host-pathogen interactions; improved methods of manipulating plant-associated microorganisms to develop more effective, environmentally sound, profitable, and safer disease management practices by interfering with microbial cell to cell signaling; and improved understanding of how pathogens spread within a plant.

FY 2007 Priorities for Research

1) Elucidation of molecular mechanisms of disease and resistance interactions between microbial plant pathogens and their host plants. This priority area will include research applications that focus only on the microorganism and research applications that focus on the association between the microorganism and the plant. Applications that address plant disease resistance genes without a significant focus on the microorganism are not appropriate for this program element, but may be appropriate for the Plant Biology (A): Gene Expression and Genetic Diversity Program;

2) Molecular mechanisms of communication among plant-associated microorganisms (e.g. plant pathogens, microbial biological control agents, nitrogen-fixing bacterial endosymbionts) and their plant hosts. This includes microbe-microbe communication and microbe-plant communication; and

3) Mechanisms by which plant pathogens spread over short distances (within a plant host or between neighboring plants).

Other Key Information

- Applications must address plant-microbe associations using economically important plants and/or microorganisms or plants and/or microorganisms that are important to agricultural sustainability (e.g. microorganisms that contribute to more environmentally sustainable crop production). In the "Rationale and Significance" section of the project description, applicants are required to include a subsection entitled "Justification of Relevance to U.S. Agriculture" providing a clear justification for the system studied in terms of economic and/or societal benefit to U.S. agriculture.

- Studies of model systems may be submitted to the program only if knowledge gained is applied to systems of economic or societal importance to U.S. agriculture within the experimental design of the submitted project and to be implemented during the project period. If the application focuses on the plant side of the association, knowledge gained from a model plant must be applied to a plant of economic importance to U.S. agriculture or to agricultural sustainability.

- Applications that focus on how microbial processes affect the soil environment should consider submission to the Soil Processes Program (25.0).

- Applicants proposing to study long-distance spread of plant pathogens of significant consequence should consider submission to the Plant Biosecurity Program (20.2).

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

52.1 Plant Genome

Investigators are encouraged to contact National Program Leader Dr. Ed Kaleikau (202-401-1931 or ekaleikau@csrees.usda.gov) regarding questions about suitability of research topics. The total amount of support available for this program will be approximately $9.0 million. Please refer to each program element for additional funding information. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, February 14, 2007. ***Note: Plant Genome (D): Applied Plant Genomics Coordinated Agriculture Project (CAP) requires a letter of intent. Please refer to this program element for additional submission information.***

Overview

This program supports research and integrated projects ranging from technology development to fundamental science and practical application for crop or forestry improvement in the United States. The ultimate goal of the program is to contribute knowledge about the biology of agriculturally important plant processes and traits, which can be used to develop plants with enhanced economic value and expanded utilities.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program include increased fundamental knowledge of the structure, function and organization of plant genomes to improve agricultural efficiency and sustainability; effective integration of modern molecular breeding technologies and classical breeding practice for U.S. crop and forestry improvement; and improved U.S. varieties for agricultural growers and producers.

The Plant Genome program has four program elements: Plant Genome (A): Tools, Resources and Bioinformatics; Plant Genome (B): Functional Genomics; Plant Genome (C): Genome Structure and Organization; and Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP).

In FY 2007, the program elements Plant Genome (A): Tools, Resources, and Bioinformatics and Plant Genome (B): Functional Genomics are focused on specialty fruit, vegetable, and ornamental plants in Solanaceae. Plant Genome (C): Genome Structure and Organization will not be offered. Plant Genome (D): Applied Plant Genomics CAP is open to all applicants and is NOT plant species specific.

Next year, in FY 2008, the program anticipates focusing on the agriculturally important specialty plants in Rosaceae (e.g. apple, cherry, peach, strawberry, etc.) and Compositae (e.g. lettuce, sunflower, etc.).

52.1 Plant Genome (A): Tools, Resources, and Bioinformatics

Investigators are encouraged to contact National Program Leader Dr. Ed Kaleikau (202-401-1931 or ekaleikau@csrees.usda.gov). The program element plans to make 5 standard research awards that will not exceed $400,000 (including indirect costs) for project periods of 2-3 years. Requests for funding above $400,000 will be returned to the applicant without review. The total amount of support available for the Plant Genome (A): Tools, Resources and Bioinformatics program element will be approximately $2.0 million. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, February 14, 2007.

Background
The Plant Genome (A): Tools, Resources, and Bioinformatics program element will focus on research to advance knowledge of the genome in economically significant specialty fruit, vegetable, and ornamental plants in Solanaceae (e.g. pepper, petunia, potato, tomato, etc.) for U.S. agriculture. The development and transfer of genome technologies can lead to improved quality of human nutrition, health and well-being, enhanced economic opportunities, and protection of the environment.

FY 2007 Priorities for Research

1) Use of genome-wide approaches for mapping and identification of important genes (e.g. Physical maps, ESTs, cDNAs, BAC libraries, SNPs, FISH, micro-arrays, transformation technologies, etc.), including MAS and QTL analysis (e.g. drought and temperature stress, disease and pest resistance, etc.), and comparative genomics (e.g. enabling cross-species markers, etc.). These tools and resources should be explicitly developed with applied goals in mind, including but not limited to mapping and deployment of beneficial QTL in classical breeding programs, and molecular identification of beneficial alleles of any particular gene of agricultural significance; and

2) Plant bioinformatics and database needs to enable cross-species comparisons and to link genomic data to agronomic and quality traits of economic value in agricultural plants.

Other Key Information – Genome Tools Resources and Bioinformatics

- Applicants must justify the potential impact of the proposed research and demonstrate that they can apply the most recent technologies. If tools and resources are developed (e.g. biological materials, germplasm, software, etc.), an applicant must budget for and demonstrate an adequate and efficient storage and distribution of the tools and resources once they are available. A description of quality control measures must be included in the application.

- Applicants must include a budgeted plan for the release of the results of their research to the public in a timely manner. All sequence and expression data must be released to public repositories (e.g. Genbank under the Bermuda standards; GEO under MIAME compliance; etc.). All phenotype and map data must be deposited into an appropriate public database (e.g. major community databases, etc.) in a rapid timeframe after quality control tests. Arrangements must be documented in the application.

- Investigators are encouraged to develop national and international collaborations with research groups already working on the species of interest to minimize duplication of effort and maximize cost effectiveness. U.S. collaboration with international partners is appropriate; however, applications must be submitted by eligible U.S. institutions.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

52.1 Plant Genome (B): Functional Genomics
Investigators are encouraged to contact National Program Leader Dr. Ed Kaleikau (202-401-1931 or ekaleikau@csrees.usda.gov). The program element plans to make 5 standard research awards that will not exceed $400,000 (including indirect costs) for project periods of 2-3 years. Requests for funding above $400,000 will be returned to the applicant without review. The total amount of support available for the Functional Genomics program element will be approximately $2.0 million. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, February 14, 2007.

Background
The plant functional genomics program element will focus on assessing gene function through development and application of genome-wide experimental approaches in economically significant specialty fruit, vegetable, and ornamental plants in Solanaceae (e.g. pepper, petunia, potato, tomato, etc.) for U.S. agriculture.

FY 2007 Priority for Research

1) Increase the understanding of the biological role of genomic sequence, including coding, regulatory and repeated sequences, and to link these sequences to physiological functions or agricultural and food processes.

Other Key Information - Functional Genomics

- Applicants must justify the potential impact of the proposed research. If tools and resources are developed (e.g. biological materials, germplasm, software, etc.), an applicant must budget for and demonstrate an adequate and efficient storage and distribution of the tools and resources once they are available. A description of quality control measures must be included in the application.

- Applicants must include a budgeted plan for the release of the results of their research to the public in a timely manner. All sequence and expression data must be released to public repositories (e.g. Genbank under the Bermuda standards; GEO under MIAME compliance; etc.). All phenotype and map data must be deposited into an appropriate public database (e.g. major community databases, etc.) in a rapid timeframe after quality control tests. Arrangements must be documented in the application.

- Investigators are encouraged to develop national and international collaborations with research groups already working on the species of interest to minimize duplication of effort and maximize cost effectiveness. U.S. collaboration with international partners is appropriate; however, applications must be submitted by eligible U.S. institutions.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

52.1 Plant Genome (C): Genome Structure and Organization

The Plant Genome (C): Genome Structure and Organization program element will not be offered in FY 2007. Contingent on available funding, this program element may be offered again in FY 2008. For additional information on the program, please contact National Program Leader Dr. Ed Kaleikau (202- 401-1931 or ekaleikau@csrees.usda.gov).

52.1 Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP)

Investigators are encouraged to contact National Program Leader Dr. Ed Kaleikau (202- 401-1931or ekaleikau@csrees.usda.gov) regarding questions about suitability of the integrated project. The program element anticipates making one integrated Coordinated Agricultural Project (CAP) award that will not exceed a total budget (including indirect costs) of $5.0 million for a period of time not to exceed 4 years. Requests for funding above $5 million will be returned to the applicant without review. ***Note: This program requires a letter of intent by December 6, 2006 (5:00pm ET) prior to application submission. Applications submitted without an approved letter of intent will not be reviewed. Please review content in the Other Key Information portion for additional information.*** *Program Deadline: Invited Electronic applications must be submitted by 5:00 P.M., Eastern Time, February 14, 2007.*

Background

The applied plant genomics Coordinated Agricultural Project (CAP) element is seeking applications for a community of researchers, educators, and extension specialists to focus on large-scale application and translation of genome discoveries and technology for U.S. crop or forestry improvement. The goal of the CAP is to move science from the lab to the field to the marketplace and, in the process, to solve real world problems. To accomplish this goal, the program is seeking applications that respond to existing or emerging problems, opportunities, and issues through the development and application of science-based knowledge.

CAP applications are expected to demonstrate coherent and complementary integrated activities with the ultimate goal of being a National strategy or solution that could be implemented for U.S. agricultural crops or forestry improvement. Applications are expected to take advantage of recent advances in genomics and to translate basic discoveries and knowledge to practical application. Comprehensive approaches are expected to include coordinated work on several of the following areas but not limited to: development and implementation of easy-to-use molecular markers for breeding; establishment of mapping populations; utilization of functional genomic tools, resources, and

knowledge; identification of genomic intervals carrying genetic traits of interest (e.g. quality, disease and pest resistance, stress tolerance, bioenergy, etc.); implementation of informatics-based tools for breeding; effective communication of applied genomics to end-users, producers, growers, farmers, scientists, students, and the lay public; development and use of extension tools to provide the public with information on agricultural advances and challenges and educate future generations of agricultural scientists in technology use and transfer.

A CAP should seek to bring together a multi-state, multi-institutional, and multi-disciplinary team to integrate genomic discoveries and technology with breeding practice; accelerate identification of traits of interest directly useful to breeders to develop improved varieties; develop related education and training for students and scientists in the practical application of genomics-based tools; and provide complementary outreach efforts to inform consumers, producers, processors, and scientists about the potential benefits of such an approach. The intent of the CAP is to promote collaboration, open communication, the exchange of information and the development of resources that accelerate application of genome discovery and technology to plant improvement. The CAP aims to reduce duplication of efforts and integrate activities among individuals, institutions, states, and regions. Therefore, applications should clearly articulate how a CAP award will complement and/or link with existing programs or projects.

CAP participants would serve as a team comprised of members working in discovery, learning, and engagement to conduct research, education, and extension utilizing an integrative approach on an emerging or priority area to improve plants important to U.S. agriculture. This integrated team would contain expertise in genomics, genetics, breeding, genetic resources, bioinformatics, plant biology as well as expertise from principal stakeholders and partners. Partnerships with end user groups (e.g. industry, processors, growers, etc.) are strongly encouraged. The application should outline the potential of the CAP team, its structure, coordination and plan of implementation, and propose an integrated research, education and extension project that will be evaluated during the project period.

FY 2007 Priority for Integrated Activities

1) Plant applied genomics will focus on the application of genome discoveries and technology for U.S. crop or forestry improvement. This priority is open to all applicants and is NOT plant species specific.

Other Key Information

- Support will be provided as a Coordinated Agricultural Project (CAP) award that will not exceed a total budget (including indirect costs) of $5 million ($1.25 million per year) for a period of time not to exceed 4 years. The program anticipates making awards as a continuation grant, which is a grant instrument by which the Department agrees to support a specified level of effort for a predetermined project period (e.g. annually) with a statement of intention to provide additional support at a future date, provided that performance has been satisfactory, appropriations are available for this purpose, and continued support would be in the best interest of the Federal government and the public.

- **Project Directors wishing to submit an integrated proposal to the Applied Plant Genomics Coordinated Agricultural Project (CAP) program must submit by email a letter of intent to Ed Kaleikau (**ekaleikau@csrees.usda.gov**) by 5:00 P.M. Eastern Time on December 6, 2006.** Letters must be submitted in PDF format and contain: 1) a descriptive title of the proposed project; 2) names and roles of the project directors and other key personnel, along with their institutions; and 3) a brief statement of approaches and objectives, including identifying the program priority to which the project is responding (1500 words or less). These letters will be reviewed for relevance to program priorities, innovation, and potential scientific impact. A response to the letter encouraging or rejecting a full application will be communicated to the project director by **December 20, 2006**. The National Program Leader will not provide feedback regarding content in the letter. **Invited integrated electronic applications must be submitted by 5:00 P.M., Eastern Time, February 14, 2007. Only those project directors receiving notification from the National Program Leader encouraging a formal application may submit a full application. No other applications will be considered.**

- Integrated project proposals for this program element must include research, education, and extension/outreach objectives. In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives.

Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- Applicants are strongly encouraged to see the previously funded CAP awards for guidance (e.g. http://www.uark.edu/ua/ricecap, http://maswheat.ucdavis.edu/, and http://www.barleycap.org/).

- An aim of a CAP award is to encourage maximum flexibility in applied plant genomics research, education and extension. Applications will be evaluated based on how well their goals and objectives respond to current needs utilizing genomic tools and resources. It is recognized however, that as an award's comprehensive approach unfolds, unexpected advances and promising leads, or unforeseen new National needs related to project goals and objectives, may be identified. The CAP team members are expected to be capable of responding to these opportunities. As a result, there is an expectation that objectives may be redirected and/or new objectives may be developed with associated budget adjustments. To encourage flexibility, the program does not expect that all investigators associated with the proposed project will be supported throughout its duration. It is suggested that investigators involved in shorter-term, specific tasks be supported through a series of renewable subcontracts. In their original budgets, applicants may request that no more than 25% of the requested funds be available to accomplish time-critical objectives of National interest that they will determine at a later date. The requested funds should be indicated on Field H, Other Direct Costs, of the budget form and identified as "Future National Interests" in the budget narrative.

- In a SINGLE INTEGRATED RESEARCH, EDUCATION, AND EXTENSION APPLICATION, applied plant genomic projects are requested that incorporate the following:

  (a) A budgeted plan for outreach to effectively communicate the goals and objectives of the CAP to a target audience (e.g. producers, end-users, the general public, etc.) to the maximum extent possible and as an integral part of the project approach, a broadening educational experience for students (e.g. provide innovative frameworks for undergraduate and graduate training; and/or exceptional learning opportunities in emerging knowledge areas), postdoctoral research associates and others to participate in the CAP. The plan must include education (e.g. development of integrative university-level teaching modules/curricula utilizing the knowledge for the problem area) and extension opportunities with measurable outcomes for groups under-represented in science to participate. The plan must include approaches to evaluate educational deliverables (e.g. curricula design; exceptional expertise development – undergraduate and graduate) and extension activities (e.g. measurable change in behavior, i.e. applicability of the research). We also strongly encourage coordination with the CSREES educational programs as an opportunity, for example, to partner with minority serving institutions. The following link has been included to access CSREES educational funding opportunities, http://www.csrees.usda.gov/about/offices/serd_funding.html;

  (b) A budgeted project management plan to ensure efficient functioning of the CAP team that includes an organizational chart, administrative timeline, a description of how the project will be governed, and identification of short-, medium- and long-term metrics to be evaluated, what expectations are required from each team member, a mechanism whereby progress metrics can be evaluated for future budgetary allocations, and how the project will complement and/or link to existing programs or projects to include multi-disciplinary, multi-institutional, multi-state and international collaborations. The plan must include an exit strategy beyond the requested award period, without assuming long-term NRI support. The management of the research, education, and extension integrative activities must be clearly incorporated in the overall management plan;

(c) A budgeted data management plan that includes a description of how project information, data, and results will be made publicly available. The plan must include capacity to freely interface with major community databases and with all project locations, a description of the database development, deployment, nomenclature standardization, data mining and analysis, interoperability, web presentation, etc. Applicants must aim to release the results of their research to the public in a timely manner and in an accessible and usable form. If a professional managed community database exists, the plan must demonstrate coordination to that database and a letter of support submitted with the application. The plan should adapt software and data structures already available through an open source system, adopt a LIMS convention for the project with breeder input into the ontogeny and design of the system, training for all project personnel who will generate or analyze data, agreement on nomenclature at every level, assurance that the data are compatible with databases or information services for long-term curation and storage, dedicated personnel to provide day-to-day management of the database and compliance monitoring, etc.;

(d) A budgeted plan to develop or improve high-throughput mapping and marker development, establish mapping populations, and identify genomic intervals carrying traits of agronomic interest directly useful to breeders and to other biologists for fundamental plant science research. The plan may include production of localized or total-genome maps that will be useful in improvement or in cloning genes of agricultural importance. The application should clearly justify the nature of the map to be constructed (e.g. genetic, physical or comparative; high density or low density). Applications must include an assessment of the present state of the genome map, the availability of existing genetic materials and technologies, the rationale for choice of the mapping population, genotype or breeding line, and the short and long-term applications of the map for plant breeding or other research;

(e) A budgeted plan to develop or improve web accessible informatics-based tools for plant breeders that enable efficient access to genetic, trait, physical, and expression data, etc. The plan may focus on: providing informatics training and education opportunities that foster a collaborative interface between CAP participants, breeders, biologists, computational scientists, and end users; the improvement of statistical, and computational methods for analyzing genome/genetic data critical for plant breeding objectives that include controlled vocabularies; the improvement of resources for the acquisition, management, storage, and interoperability of genome/genetic data that can incorporate increasingly diverse information for plant improvement; the enhancement of tools for analysis of plant genome sequence data including quantitative and graphical representation of germplasm relatedness, comparison of data across species and QTL analysis; and the improvement of resource web pages for specific classes of traits, proteins, genes, or metabolic pathways for plant improvement, etc.;

(f) A budgeted plan to develop or improve molecular markers and apply marker-assisted breeding/selection to U.S. plant breeding objectives and to utilize new genome technologies to address problems not readily solved by conventional breeding methods. The CAP will support projects to locate, identify, and isolate genes that are important to the productivity and sustainability of U.S. agriculture. To prevent duplication of effort, applicants are strongly encouraged to use the available genetic tools and resources, such as existing genomic/genetic maps, cytogenetic stocks, alien addition lines, near isogenic lines, mutants, transposons, molecular markers or other existing information and technologies to locate, identify and isolate genes that are directly useful to breeders;

(g) A budgeted plan for sharing results and management of intellectual property that includes a description of what, how, and when the user community would have public access to the research, education and extension deliverables and outcomes of the project; and

(h) A budgeted plan and timeline for an integrated advisory group of principal stakeholders and scientists relevant to the proposed research, education, and extension activities (e.g. include letters of commitment and rationale for their role) to assess and evaluate the quality, potential outcomes and impacts, and how they could function effectively to support the goals and objectives of the CAP.

Agricultural Production and Value-Added Processing Program Cluster Overview

The Agricultural Production and Value-Added Processing program cluster addresses CSREES' strategic goal ***to enhance economic opportunities for agricultural producers.*** It also supports CSREES' strategic goals of ***enhancing protection and safety of the Nation's agriculture and food supply, increasing economic opportunities and improving quality of life in rural America, improving the Nation's nutrition and health, and protecting and enhancing the Nation's natural resource base and environment.***

Agricultural production and marketing play a crucial role in the success and growth of the Nation's economy. The programs in the Agricultural Production and Value-Added Processing cluster support fundamental and mission-linked research and integrated research activities to address current and future challenges to food, feed, and fiber production, post-harvest processing, and competitiveness of U.S. agricultural in domestic and international markets. They also support the science-based knowledge and technology development that will lead to new and improved uses for agricultural and forestry biomass in bioenergy, industrial, and pharmaceutical applications. Basic research supported by Agricultural Production programs forms the foundation of scientific knowledge needed to use the increasing amounts of genomics data, tools, and resources for food, feed, and fiber production. These programs make use of cutting edge technologies and tools, such as nanotechnology, genomics, proteomics, and metabolic engineering, to ensure that agricultural production in the U.S. remains competitive, innovative, and sustainable.

Programs in this cluster range from fundamental research on plant and animal biology to applied research on product development, improvement, and agricultural markets and trade, thus linking basic research to application, policy, and practice. Education and outreach activities in these programs will enable transfer of knowledge from researchers to producers, consumers, industry, and other stakeholders. Projects funded by these programs will provide vital science-based knowledge and outreach to ensure future growth and development of agricultural production and value-added processes as well as competitiveness of U.S. agriculture, thus increasing economic opportunities for agricultural producers and providing agricultural products with enhanced value and lower cost for consumers.

In FY 2007, the NRI invites applications in the following programs related to Agricultural Production and Value-Added Processing:

Animal Production Programs:

- 41.0 Animal Reproduction
- 42.0 Animal Growth and Nutrient Utilization

Plant Production Programs:

- 56.0 Plant Biology
  - Formerly:
    - 22.1 Agricultural Plants and Environmental Adaptations,
    - 52.2 Genetic Processes and Mechanisms of Agricultural Plants,
    - 53.0 Developmental Processes of Agricultural Plants,
    - 54.3 Agricultural Plant Biochemistry

Value-Added Production and Processing Programs:

- 61.0 Agricultural Markets and Trade
- 71.2 Biobased Products and Bioenergy Production Research
- 75.0 Nanoscale Science and Engineering for Agriculture and Food Systems

Agricultural Production and Value-Added Processing Program Descriptions

41.0 Animal Reproduction

Investigators are *encouraged to contact National Program Leader Dr. Mark Mirando (202-401-4336 or mmirando@csrees.usda.gov) regarding questions about suitability of research topics and integrated activities.*

Proposed research project budget requests must not exceed $350,000 (including indirect costs) and proposed integrated project budget requests must not exceed $450,000 (including indirect costs) for project periods of 2-4 years. Requests for funding above $350,000 for research projects and $450,000 for integrated projects will be returned to the applicant without review. The total amount of support available for this program will be approximately $4.0 million, with up to $900,000 for integrated projects. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, November 29, 2006.

Background

Reducing infertility and improving fertility in breeding populations of agriculturally important animals, including aquacultured species, is of major importance for efficient animal production. In several species, fertility has declined significantly over the past several decades. New knowledge is needed to improve fertility and facilitate implementation of integrated animal production systems that will contribute to sustainability of the animal production unit. Approaches to managing animal reproduction also are key to future application of biotechnologies. Therefore, the objective of this program is to increase the knowledge base for reproductive biology of agriculturally important animals with the goal of reducing infertility and improving overall reproductive management in animal production systems.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are to improve fertility and decrease infertility; develop improved methods for sterilization and production of monosex populations of animals; and improve reconstitution of germplasm from preserved sources (including cryopreserved gametes and embryos).

FY 2007 Priorities for Research

1) Gonadal function, including production, function, and preservation of gametes;

2) The hypothalamic-pituitary axis; and

3) Embryonic and fetal development, including interaction between the conceptus and its uterine environment.

FY 2007 Priority for Integrated Activities

1) Development, delivery, and implementation of approaches or management practices to regulate fertility through manipulation or management of gonadal function, the hypothalamic-pituitary axis, and/or embryonic and fetal development.

Other Key Information - Research and Integrated Activities

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- All model systems (especially the use of laboratory animals, cell cultures, etc.) must be thoroughly justified in terms of the program guidelines and relevance to U.S. animal agriculture. This program will no longer accept applications whose studies primarily utilize non-agricultural or non-aquacultured species as animal models.

- Applications that focus on uterine defense mechanisms (e.g. non-disease specific immunology) should be submitted to the Animal Protection and Biosecurity Program (44.0). Applications addressing the effects of disease, animal health, or alterations in the immune system on reproduction should not be submitted to this program. Applications that involve transcriptional profiling or sequencing of genes involved in reproduction must include physiological or functional studies at the cellular, systemic, or whole animal level.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

42.0 Animal Growth and Nutrient Utilization

Investigators *are encouraged to contact National Program Leader Dr. Mark Mirando (202-401-4336 or mmirando@csrees.usda.gov) regarding questions about suitability of research topics and integrated activities. Proposed research project budgets must not exceed $350,000 (including indirect costs) and proposed integrated project budgets must not exceed $450,000 (including indirect costs) for project periods of 2-4 years. Requests for funding above $350,000 for research projects and $450,000 for integrated projects will be returned to the applicant without review. The total amount of support available for this program will be approximately $4.5 million with up to $900,000 for integrated projects. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, June 5, 2007.*

Background

Suboptimal nutrition and growth are limiting factors in animal productivity. Basic information regarding these processes in agriculturally important animals, including aquaculture and aquacultured species, is lacking. The primary objective of the program is to increase our understanding of the biological mechanisms underlying normal animal growth, development of skeletal muscle, lactation, and nutrient digestion and metabolism. New knowledge in these areas is needed to improve animal production and control muscling, growth, metabolism, and mammary function. Research is also needed to identify biological mechanisms for increasing dietary nutrient availability, directing nutrient partitioning toward more protein and less fat, enhancing nutrient composition in animal products, and minimizing excretion of nutrients as waste products.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are to improve quality and efficiency of meat and milk production; improve animal utilization of nutrients; and reduce output of nutrients into the environment as animal waste products.

FY 2007 Priorities for Research

1) Improving quality and efficiency of meat and milk production; and

2) Control of nutrient intake, digestion, absorption, and availability to improve nutrient utilization and minimize excretion of endogenous nutrients as waste products.

FY 2007 Priorities for Integrated Activities

1) Development, delivery, and implementation of approaches or management practices to improve quality and efficiency of meat and milk production; and

2) Development, delivery, and implementation of approaches or management practices to control nutrient intake, digestion, absorption, and availability to improve nutrient utilization and minimize excretion of endogenous nutrients as waste products.

Other Key Information - Research and Integrated Activities

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see

http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- All model systems (especially the use of laboratory animals, cell cultures, etc.) must be thoroughly justified in terms of the program guidelines and relevance to U.S. animal agriculture. This program will no longer accept applications whose studies primarily utilize non-agricultural or non-aquacultured species as animal models.

- Applications concerning the developmental biology of the immune system should be submitted to the Animal Protection and Biosecurity (44.0A): Animal Disease Program element. Applications focusing on developmental biology of the reproductive system (including embryonic, gonadal, and placental development) and applications dealing with nutritional regulation of reproduction should be submitted to the Animal Reproduction Program (41.0). Applications addressing the effects of diseases or alterations in the immune system on animal growth, lactation, or nutrient utilization or those that address nutritional regulation of animal health or immune function should not be submitted to this program. Applications that involve transcriptional profiling or sequencing of genes involved in animal growth, lactation, or nutrient utilization must also include physiological or functional studies at the cellular, systemic, or whole-animal level. Applications seeking to create functional foods (e.g. to increase the amount of omega-3 fatty acids, conjugated linoleic acids, or nutritional components in meat, milk, or eggs) should not be submitted to this program.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

56.0 Plant Biology: Foundation for Agricultural and Forest Plant Production and Improvement

Investigators are encouraged to contact National Program Leader(s) Dr. Liang-Shiou Lin (202-401-5042 or llin@csrees.usda.gov) for program elements A and D and Dr. Gail McLean (202-401-6060 or gmclean@csrees.usda.gov) for program elements B and C regarding questions about suitability of research topics and integrated activities. The total amount of support available for this program will be approximately $16.1 million with up to $1.7 million for integrated projects and $14.4 million for research projects. Please see individual program elements for additional funding information. Program Deadline: ***Each element of this program requires a letter of intent prior to application submission. Applications submitted without an approved letter of intent will not be reviewed. Please review content in the Other Key Information portion of each program element for additional information****.*

Overview

This program supports projects that will provide fundamental knowledge and training for improvement and sustainability of agricultural plant and forestry production. Knowledge of plant biology from the molecular to the systems level is essential for development of plants with increased productivity, fitness, and use. Such fundamental understanding of plant biology will allow scientists to make use of the increasing wealth of genomics data and tools and to develop new varieties of agricultural plants through techniques such as biotechnology and classical breeding.

The science-based knowledge and education contributed by this program can lead to increased economic opportunities for producers and consumers by reducing production costs, improving quality, and increasing value of agricultural plant products. This knowledge will allow U.S. agriculture to face critical needs in the areas of bioenergy, environmental change, loss of agricultural land, and increasing global competition.

The Plant Biology consists for four program elements: Plant Biology (A): Gene Expression and Genetic Diversity; Plant Biology (B): Environmental Stress; Plant Biology (C): Biochemistry; and Plant Biology (D): Growth and Development.

In FY 2007, the program elements Plant Biology (A): Gene Expression and Genetic Diversity and Plant Biology (B): Environmental Stress are soliciting both research and integrated projects. Integrated projects in these two program elements include a plant breeding education component. Program elements Plant Biology (C): Biochemistry and Plant Biology (D): Growth and Development are soliciting research projects only. Please see specific program elements below for submission details and element-specific instructions.

56.0 Plant Biology (A): Gene Expression and Genetic Diversity
Investigators are encouraged to contact National Program Leader Dr. Liang-Shiou Lin (202-401-5042 or llin@csrees.usda.gov) regarding questions about suitability of research topics and integrated activities for this program element. Proposed research project budget requests must not exceed $400,000 (including indirect costs) and proposed integrated project budget requests must not exceed $750,000 (including indirect costs) for project periods of 2-4 years. Requests for funding above $400,000 for research projects and over $750,000 for integrated projects will be returned to the applicant without review. The total amount of support available for the Gene Expression and Genetic Diversity program element will be approximately $4.2 million with up to $1 million for integrated projects. ***Note: This program requires a letter of intent by October 5, 2006 (5:00pm ET) prior to application submission. Applications submitted without an approved letter of intent will not be reviewed. Please review content in the Other Key Information portion for additional information.*** *Program Deadline: Electronic applications for invited integrated proposals and invited research proposals must be submitted by 5:00 P.M., Eastern Time, December 14, 2006.*

Background
The plant research community is poised to apply recent advances in plant genomics to traits of economic value in important agricultural species. For this application to happen, the basic genetic processes and mechanisms must be well understood. The goal of this program element is to supply such fundamental knowledge to support the development of genetically superior varieties of crop and forest species that are more cost-effective to grow and will provide more profit for the farmers in the ever more competitive global market. The program element also aims at increasing the genetic diversity of crops in the U.S. to meet future threats and challenges and in training new scientists in plant breeding.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program element are: obtain a detailed understanding of the regulation of gene expression in agricultural plants to better use agriculturally important genes for improved crop and forest production and quality; and enhance the genetic diversity of existing crop families with the possibility of developing novel crops to meet future challenges.

FY 2007 Priorities for Research

1) Functional analyses of agriculturally important genes in plants. Studies of plant disease/pest resistance genes are appropriate for this program but are limited in FY 2007 to genes conferring resistance to insect/nematode pests or to diseases caused by fungi or Oomycetes. Studies may also include the development of improved mutational and gene silencing approaches; and

2) Research on regulatory mechanisms of gene expression. Research is encouraged that aims at understanding gene regulatory networks at the systems level.

FY 2007 Priority for Integrated Activities - Integrated projects should combine research on germplasm enhancement with education in plant breeding.

1) Application of plant population and evolutionary genetics to germplasm enhancements with emphasis on increasing the genetic diversity of crops in the U.S. and educating scientists in principles and techniques of plant breeding. Applicants are encouraged to utilize germplasm from the National Plant Germplasm System (NPGS). See **Other Key Information** for specific program element instructions on integrated application components.

Other Key Information - Research and Integrated Activities

- **Project Directors wishing to submit research and integrated projects to the Gene Expression and Genetic Diversity program element must submit by email a letter of intent to Dr. Liang-Shiou Lin (llin@csrees.usda.gov) by 5:00 P.M. Eastern Time on October 5, 2006.** Letters must be submitted in PDF format and contain: 1) a descriptive title of the proposed project; 2) names and roles of the project directors and other key personnel, along with their institutions; and 3) a brief statement of approaches and objectives, including identifying the program priority to which the project is responding (500 words or less). These letters will be reviewed for relevance to program priorities, innovation, and potential scientific impact. A response to the letter encouraging or rejecting a full application will be communicated to the project director by **October 19, 2006**. The National Program Leader will not provide feedback regarding content in the letter. **Invited research and integrated electronic applications must be submitted by 5:00 P.M., Eastern Time, December 14, 2006. Only those project directors receiving notification from the National Program Leader encouraging a formal application may submit a full application. No other applications will be considered.**

- Integrated projects for this program element should include research and education objectives. These include: a) hypothesis-driven research to fill knowledge gaps that are critical to the development of practices and programs to address the problem area; and b) educational deliverables (e.g., interdisciplinary curricula and/or experiential learning for graduate and undergraduate students) that will train the next generation of scientists and educators who will work in the problem area. Projects must also include a management plan (developed with input from stakeholder advisory groups) that leads to measurable improvements in the problem area. This management plan should provide information on how the team members will communicate including a schedule for communication. Projects should also provide a plan for creating a stakeholder advisory board (if not already in place) and include the types of stakeholders who are expected to be involved and how their input would be used. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The education component of an integrated application must go beyond the level of laboratory training for graduate students or postdoctoral researchers supported by the grant. Examples of education activities in agricultural plant breeding and germplasm enhancement include curriculum and/or degree program development, multi-college/university approaches to regional or interstate curriculum development, faculty sharing, and joint degrees. The education component is expected to describe institutional resources and must clearly indicate how and why the proposed new curriculum or degree will complement, enhance, or replace any existing curriculum or programs at the institution. Projects should also include plans for assessment and performance outcome measurement, for continuation or expansion beyond the period of USDA support, and potentially for tracking of participant accomplishments after course completion.

- Integrated projects that identify and recruit undergraduate students for careers in plant breeding and for pipelining into graduate training in plant breeding are particularly encouraged.

- Use of Model Species: Importance of the proposed research to agricultural productivity and sustainability should be clearly indicated in the application. Researchers are strongly encouraged to conduct research directly in a crop or forest species important to agriculture. Use of non-agricultural model systems is acceptable if tools are not yet available in the agricultural species of interest. However, the investigator must clearly indicate how such non-agricultural model studies are relevant to agriculture and food systems or forest species, the strategy for transferring the knowledge to these species for agricultural or forestry benefit, and the potential timeframe for such transfer. **NOTE**: Beginning in FY 2008, this program will no longer accept applications solely using non-agricultural model species; studies of model systems may still be submitted to the program if the knowledge gained is applied to systems of economic or societal importance within the submitted application.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

56.0 Plant Biology (B): Environmental Stress

Investigators are encouraged to contact National Program Leader Dr. Gail McLean (202-401-6060 or gmclean@csrees.usda.gov) regarding questions about suitability of research topics and integrated activities for this program element. Proposed research project budget requests must not exceed $350,000 (including indirect costs) and proposed integrated project budget requests must not exceed $600,000 (including indirect costs) for project periods of 2-4 years. Requests for funding above $350,000 for research projects and $600,000 for integrated projects will be returned to the applicant without review. The total amount of support available for the Environmental Stress program element will be approximately $3.5 million with up to $700,000 for integrated projects. ***Note: This program requires a letter of intent by October 5, 2006 (5:00pm ET) prior to application submission. Applications submitted without an approved letter of intent will not be reviewed. Please review content in the Other Key Information portion for additional information.*** *Program Deadline: Electronic applications for invited integrated proposals and invited research proposals must be submitted by 5:00 P.M., Eastern Time, December 14, 2006.*

Background

The future of agricultural productivity and sustainability depends on the ability of agricultural and forestry plants to grow and be productive in response to a changing environment, for example in light of short term challenges, such as flooding, to long term challenges, such as global climate change, sustained drought, and loss of arable land. This program element supports both fundamental research projects to improve tolerance to environmental stress and integrated projects to advance training in plant breeding and germplasm enhancement in agriculturally important plants. Research, ranging from genomics to physiology, will provide the basic knowledge to devise new or improved strategies for decreasing the impact of environmental stress on agricultural and forest productivity and sustainability. Integrated activities will aid in the transfer of science-based knowledge to agricultural producers by helping provide the expertise needed for plant biotechnology and breeding approaches.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program element are: generate fundamental knowledge of genes, proteins, and networks involved in plant abiotic stress response that can lead to development of approaches and tools to aid agricultural plant productivity in light of reduced inputs or increased environmental stresses; and develop, through biotechnology and/or breeding, new plant lines or populations for improved stress-resistance in agricultural plants.

FY 2007 Priorities for Research

Research should identify and/or characterize genes, proteins, and/or networks that contribute to abiotic stress tolerance for the program priorities below. Applications must focus on characterization and understanding of the mechanism(s) used by particular plant species in adaptation to or tolerance of specific environmental condition(s). Such research may include molecular, physiological, biochemical, and/or cell biological approaches.

1) Water stress (including drought, salt, and flooding stress);

2) Global change stress (including increased carbon dioxide, ozone); and

3) Nutrient stress.

FY 2007 Priority for Integrated Activities - Integrated projects should combine research on the mechanisms of plant response or adaptation to environmental stress with education in plant breeding.

1) Plant breeding and germplasm enhancement, with particular emphasis on development of drought tolerant agricultural plants and on training scientists in plant breeding. Applicants are encouraged to utilize germplasm from the National Plant Germplasm System (NPGS). See **Other Key Information** for specific program element instructions on integrated application components.

Other Key Information

- **Project Directors wishing to submit research and integrated projects to the Environmental Stress program element must submit by email a letter of intent to Dr. Gail McLean (**gmclean@csrees.usda.gov**) by 5:00 P.M. Eastern Time on October 5, 2006.** Letters must be submitted in PDF format and contain: 1) a descriptive title of the proposed project; 2) names and roles of the project

directors and other key personnel, along with their institutions; and 3) a brief statement of approaches and objectives, including identifying the program priority to which the project is responding (500 words or less). These letters will be reviewed for relevance to program priorities, innovation, and potential scientific impact. A response to the letter encouraging or rejecting a full application will be communicated to the project director by **October 19, 2006**. The National Program Leader will not provide feedback regarding content in the letter. **Electronic applications for invited research and integrated proposals must be received by 5:00 P.M., Eastern Time, December 14, 2006. Only those project directors receiving notification from the National Program Leader encouraging a formal application may submit a full application. No other applications will be considered.**

- In FY 2006 the program priorities were narrowed, and some priority areas are now offered on alternate years. Research on nutrient stress is solicited in odd-numbered fiscal years. Research on temperature stress will be solicited on even-numbered years and thus will be solicited in FY 2008.

- All applications must demonstrate a clear link to a realistic environmental problem and use realistic treatments and measurement of plant stress status and environmental conditions. Applications where the proposed research integrates molecular biology methods with physiological or ecophysiological approaches will be most competitive.

- Research projects which only develop stress-tolerant varieties without proposing research to characterize plant stress response mechanisms are not appropriate for the program. Phytoremediation and adaptation to biotic stresses (such as herbivory or pests) should not be submitted to this program. For applications containing ecosystem level studies, applicants should consider submission to the Managed Ecosystems Program (23.1). For functional analyses of agriculturally important genes not directly related to abiotic plant stress mechanisms, applicants should consider submission to the Plant Biology (A): Gene Expression and Genetic Diversity program element.

- Integrated projects for this program element should include research and education objectives. These include: a) hypothesis-driven research to fill knowledge gaps that are critical to the development of practices and programs to address the problem area; and b) educational deliverables (e.g., interdisciplinary curricula and/or experiential learning for graduate and undergraduate students) that will train the next generation of scientists and educators who will work in the problem area. Projects must also include a management plan (developed with input from stakeholder advisory groups) that leads to measurable improvements in the problem area. This management plan should provide information on how the team members will communicate including a schedule for communication. Projects should also provide a plan for creating a stakeholder advisory board (if not already in place) and include the types of stakeholders who are expected to be involved and how their input would be used. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The education component of an integrated application must go beyond the level of laboratory training for graduate students or postdoctoral researchers supported by the grant. Examples of education activities in agricultural plant breeding and germplasm enhancement include curriculum and/or degree program development, multi-college/university approaches to regional or interstate curriculum development, faculty sharing, and joint degrees. The education component is expected to describe institutional resources and must clearly indicate how and why the proposed new curriculum or degree will complement, enhance, or replace any existing curriculum or programs at the institution. Projects should also include plans for assessment and performance outcome measurement, for continuation or expansion beyond the period of USDA support, and potentially for tracking of participant accomplishments after course completion.

- Integrated projects that identify and recruit undergraduate students for careers in plant breeding and for pipelining into graduate training in plant breeding are particularly encouraged.

- Use of Model Species: Importance of the proposed research to agricultural productivity and sustainability should be clearly indicated in the application. Researchers are strongly encouraged to conduct research directly in a crop or forest species important to agriculture. Use of non-agricultural model systems is acceptable for research applications if tools are not yet available in the agricultural species of interest. However, the investigator must clearly indicate how such non-agricultural model studies are relevant to agriculture and food systems or forest species, the strategy for transferring the knowledge to these species for agricultural or forestry benefit, and the potential timeframe for such transfer. **NOTE:** Beginning in FY 2008, this program will no longer accept applications solely using non-agricultural model species; studies of model systems may still be submitted to the program if the knowledge gained is applied to systems of economic or societal importance within the submitted application.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

56.0 Plant Biology (C): Biochemistry

Investigators are encouraged to contact National Program Leader Dr. Gail McLean (202-401-6060 or gmclean@csrees.usda.gov) regarding questions about suitability of research topics for this program element. Proposed budget requests must not exceed $400,000 (including indirect costs) for research projects for project periods of 2-4 years. Requests for funding above $400,000 will be returned to the applicant without review. The total amount of support available for the Biochemistry program element will be approximately $4.2 million. ***Note: This program requires a letter of intent by December 6, 2006 (5:00pm ET) prior to application submission. Applications submitted without an approved letter of intent will not be reviewed. Please review content in the Other Key Information portion for additional information.*** *Program Deadline: Electronic submissions for invited applications must be submitted by 5:00 P.M., Eastern Time, February 14, 2007.*

Background

For plant genomics to lead to development of agricultural plants with improved or optimized performance, the biochemical processes and pathways in the cell as well as the genes and proteins involved in biochemical processes and pathways must be characterized. Indeed, lack of knowledge about a biochemical pathway or process often limits the application of the genomic and genetic information in improving agricultural plant and forest productivity and quality. The goal of this program element is to provide basic knowledge about biochemical processes, pathways, and interactions in agriculturally and economically important plants and related organisms. Fundamental knowledge in biochemistry, combined with genomics and molecular biology, will lead to practical applications such as enhancing the nutritional value of plant-based foods, increasing the productivity and fitness of agricultural plants and trees, better utilizing trees and agricultural plants for bioenergy, and developing agricultural plants as bioreactors to produce important industrial and pharmaceutical compounds.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program element are: contribute fundamental knowledge of biochemical pathways, processes, and mechanisms for potential utilization of genomic sequences in agricultural plants; create improved agricultural plant lines or populations based on use of basic biochemical knowledge and biotechnology; and develop at least one reference agricultural species for biochemical studies.

FY 2007 Priorities for Research

For the program priorities listed, research should either focus on characterization of a biochemical process or pathway important for plant agricultural production systems or address a significant problem in agricultural plant biology using a predominantly biochemical approach. Use of small-scale proteomics or metabolomics is acceptable to gain insight into biological systems.

1) Primary and secondary metabolism, with particular emphasis on improving plant productivity, fitness, or quality;

2) Plant cell wall structure, formation, and modification (such as lignin, cellulose, hemicellulose synthesis and modification); and

3) Nitrogen fixation in regard to improving plant production and/or decreasing use of chemical fertilizer.

Other Key Information

- **Project Directors wishing to submit research projects to the Biochemistry program element must submit by email a letter of intent to Dr. Gail McLean (**gmclean@csrees.usda.gov**) by 5:00 P.M. Eastern Time on December 6, 2006.** Letters must be submitted in PDF format and contain: 1) a descriptive title of the proposed project; 2) names and roles of the project directors and other key personnel, along with their institutions; and 3) a brief statement of approaches and objectives, including identifying the program priority to which the project is responding (500 words or less). These letters will be reviewed for relevance to program priorities, innovation, and potential scientific impact. A response to the letter encouraging or rejecting a full application will be communicated to the project director by **December 20, 2006**. The National Program Leader will not provide feedback regarding content in the letter. **Electronic applications for invited research proposals must be submitted by 5:00 P.M., Eastern Time, February 14, 2007. Only those project directors receiving notification from the National Program Leader encouraging a formal application may submit a full application. No other applications will be considered.**

- In FY 2006, program priorities were narrowed and some priority areas will only be offered on alternate years. Research on nitrogen fixation will be solicited in odd-numbered fiscal years. Research on photosynthesis and respiration will be solicited on even-numbered fiscal years and thus will be solicited next year in FY 2008.

- Use of Model Species: Importance of the proposed research to agricultural productivity and sustainability should be clearly indicated in the application. Researchers are strongly encouraged to conduct research directly in a crop or forest species important to agriculture. Use of non-agricultural model systems is acceptable if tools are not yet available in the agricultural species of interest. However, the investigator must clearly indicate how such non-agricultural model studies are relevant to agriculture and food systems or forest species, the strategy for transferring the knowledge to these species for agricultural or forestry benefit, and the potential timeframe for such transfer.

- Applications on phytoremediation and the biochemistry of pest management should not be submitted to this program. Applications that focus on plant environmental response and stress should consider submission to Plant Biology (B): Environmental Stress program element. Applications that focus on plant cell biology, such as studies on cytoskeleton, membrane transport, signal transduction, and macromolecular trafficking that are critical for plant development, should consider submission to the Plant Biology (D): Growth and Development program element unless the emphasis is on biochemistry, which will be supported by this program element. For functional analyses of agriculturally important genes related to plant disease, applicants should consider submission to Plant Biology (A): Gene Expression and Genetic Diversity program element. For projects focused on metabolic engineering, the purposeful alteration of metabolic pathways to understand and use cellular pathways for chemical transformation, energy transduction, and supramolecular assembly, applicants should consider submission to the Interagency Metabolic Engineering Program (see http://www.metabolicengineering.gov).

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

56.0 Plant Biology (D): Growth and Development

Investigators are encouraged to contact National Program Leader Dr. Liang-Shiou Lin (202-401-5042 or llin@csrees.usda.gov) regarding questions about suitability of research topics for this program element. Proposed budget requests must not exceed $400,000 (including indirect costs) for research projects for project periods of 2-4 years. Requests for funding above $400,000 will be returned to the applicant without review. The total amount of support available for the Growth and Development program element will be approximately $4.2 million. ***Note: This program requires a letter of intent by December 6, 2006 (5:00 pm ET) prior to application submission. Applications submitted without an approved letter of intent will not be reviewed. Please review content in the Other Key Information portion for additional information.*** *Program Deadline: Electronic applications for invited proposals must be submitted by 5:00 P.M., Eastern Time, February 14, 2007.*

Background
The plant research community is poised to apply recent advances in plant genomics to traits of economic value in important agricultural species. For this application to happen, the fundamental knowledge on plant growth and development must be well understood. The goal of this program element is to provide such knowledge over various phases of the plant life cycle to improve crop plants through modification of plant growth patterns or developmental processes. This will provide more profit and less risk for U.S. farmers in the ever more competitive global market.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program element are: develop crop models for studying plant developmental processes; detailed understanding of signal transduction mechanisms (hormones, light, gravity, etc.) in agricultural plants to improve their performance; and enhance our ability to alter developmental processes of agricultural plants to improve plant characteristics.

FY 2007 Priorities for Research

1) Developmental pathways leading to the formation of vegetative (particularly roots) or reproductive structures, including the development of gene profiling, genetic, and proteomic tools for these studies;

2) Hormonal regulation of growth and development. Studies of "cross talk" between different hormones or between hormones and other signals using metabolomic tools are especially encouraged; and

3) Characterization of cellular structures and processes that are crucial for plant development. Proposals that integrate cell biology with physiology will be more competitive.

Other Key Information

- **Project Directors wishing to submit research projects to the Growth and Development program element must submit by email a letter of intent to Dr. Liang-Shiou Lin (**llin@csrees.usda.gov**) by 5:00 P.M. Eastern Time on December 6, 2006.** Letters must be submitted in PDF format and contain: 1) a descriptive title of the proposed project; 2) names and roles of the project directors and other key personnel, along with their institutions; and 3) a brief statement of approaches and objectives, including identifying the program priority to which the project is responding (500 words or less). These letters will be reviewed for relevance to program priorities, innovation, and potential scientific impact. A response to the letter encouraging or rejecting a full application will be communicated to the project director by **December 20, 2006**. The National Program Leader will not provide feedback regarding content in the letter. **Electronic applications for invited research proposals must be submitted by 5:00 P.M., Eastern Time, February 14, 2007. Only those project directors receiving notification from the National Program Leader encouraging a formal application may submit a full application. No other applications will be considered.**

- Investigators working on enzyme characterization or biochemical aspects of cell wall composition should consult with the National Program Leader for the Plant Biology (C): Biochemistry Program (56.0).

- Use of Model Species: Importance of the proposed research to agricultural productivity and sustainability should be clearly indicated in the application. Researchers are strongly encouraged to conduct research directly in a crop or forest species important to agriculture. Use of non-agricultural model systems is acceptable if tools are not yet available in the agricultural species of interest. However, the investigator must clearly indicate how such non-agricultural model studies are relevant to agriculture and food systems or forest species, the strategy for transferring the knowledge to these species for agricultural or forestry benefit, and the potential timeframe for such transfer. **NOTE**: Beginning in FY 2008, this program will no longer accept applications solely using non-agricultural model species. Studies of model systems may still be submitted to the program if the knowledge gained is applied to systems of economic or societal importance within the submitted application.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

61.0 Agricultural Markets and Trade

Investigators are encouraged to contact National Program Leader Dr. S. Sureshwaran (202-720-7536 or ssureshwaran@csrees.usda.gov) regarding questions about suitability of research topics. Proposed budget requests must not exceed $500,000 total (including indirect costs) for research projects of 2 to 4 years. Requests for funding above $500,000 will be returned to the applicant without review. The total amount of support available for this program will be approximately $4.4 million. The Agricultural Markets and Trade program is not an annual competition, but rather is offered in odd numbered fiscal years. Program Deadlines: Electronic applications must be submitted by 5:00P.M. Eastern Time, June 5, 2007 for the FY 2007 competition.

Background

Success of the U.S. economy in general, and the agricultural and rural economies in particular, is increasingly dependent on maintaining and expanding domestic and international markets It is also dependent on the development of new products, production practices, and business and marketing tools and information that enhance efficiency and correspondingly, the competitiveness of the producer. The Agricultural Markets and Trade program is designed to maintain and expand domestic and international markets and to identify public policies and private strategies that may be employed to enhance marketing efficiency and the competitiveness of agricultural producers.

In an increasingly competitive global environment, U.S. agricultural research needs to keep pace with the rapid changes in consumer demand for agricultural products, including heightened expectations for safe and sustainable modes of production; the impacts of expanding agricultural markets, including existing and emerging biobased products industries, on natural resources and ecosystem services; the causes, consequences, and adjustments to structural changes in agriculture and related industries; the changing macroeconomic shocks and their implications for production, consumption, prices, and trade of agricultural products; macro-trends in the organization of the food system; the benefits and costs of regulation and alternative market solutions; and the influence of existing and new policy and technology on economic productivity and performance of U.S. food, fiber, bio-based products, and ecosystem services.

To support public and private decision-making on economic and policy issues related to agriculture, trade, natural resources, and rural America, the U.S. will need to expand science-based knowledge on how to compete more effectively in the production and marketing of raw agricultural products, value-added goods, and high-tech products and services, at the same time ensuring quality of life for rural residents and enhanced stewardship of our natural resources.

The Agriculture Markets and Trade program seeks to achieve three objectives during the next ten years: (1) Provide knowledge to help maintain and expand domestic and international market opportunities; (2) Support research that builds trade capacity; and (3) Provide economic analysis to enhance efficiency and hence, the competitiveness of agricultural markets, including food, fiber, biobased products, and ecosystem services.

FY2007 Priority for Research

1) Consumer and producer attitudes and behaviors and their implications for maintaining and expanding domestic and international markets for U.S. food, fiber, bio-based products, and ecosystem services; and

2) Institutional and organizational behaviors and interactions, including public policy and government regulation, and their implications for the structure of agriculture and food systems as well as their effectiveness to promote and foster competition at home and abroad.

Other Key Information

- Applications addressing these priority areas are invited from any social or behavioral science discipline, business, management, or engineering, or interdisciplinary team. A wide range of theoretical and applied quantitative and qualitative methodological approaches is welcome, but applicants are strongly advised to specify their theory and methods on a level that a multidisciplinary review panel will understand.

- Applications are expected to present a new, creative, and innovative perspective or approach to a timely and important topic to explain the unique contribution the research will make to our understanding and

practice. Discuss the broader impact of the research, and to provide a persuasive argument why federal funding should be used to support this research.

- Proposed research must address issues and topics within the purview of the USDA and other federal decision-making agencies related to food, agriculture, rural communities, and/or natural resources.

- Applications that use or generate new sources of primary data to better define consumer behaviors, derived demand, and current and contemporary supply chain phenomena are strongly encouraged.

- Applications with topics specific to small and mid-size farm viability or agricultural development should be directed to the Agricultural Prosperity for Small and Medium-Sized Farms (66.0) Program. Applications related to risk, risk management issues, or risk management instruments and tools should be directed to the competitive programs of the USDA Risk Management Agency.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

71.2 Biobased Products and Bioenergy Production Research

Investigators are encouraged to contact National Program Leader, Dr. Chavonda Jacobs-Young (202-401-6188 or cjacobs@csrees.usda.gov) regarding questions about suitability of research. Proposed budget requests must not exceed $500,000 (including indirect costs) for project periods of 3-4 years. Requests for funding above $500,000 will be returned to the applicant without review. The total amount of support available for this program will be approximately $5.4 million. ***Note: This program requires a letter of intent by November 8, 2006 (5:00pm ET) prior to application submission. Applications submitted without an approved letter of intent will not be reviewed. Please review content in the Other Key Information portion for additional information.*** *Program Deadline: Electronic applications for invited proposals must be submitted by 5:00 P.M., Eastern Time, January 17, 2007.*

Background

The Biobased Products and Bioenergy Production Research Program supports fulfillment of Executive Order 13134 (*Developing and Promoting Biobased Products and Bioenergy*, available at http://www.bioproducts-bioenergy.org/about/eo13134.asp), which calls for a tripling of U.S. use of biobased and bioenergy products by 2010 and the *Biomass Research and Development Act of 2000* (available at http://www.bioproducts-bioenergy.org/about/bio_act.asp), which promotes research and development leading to the production of biobased industrial products. Also, the program through improving the utilization of forestry residuals supports the *Healthy Forests Restoration Act of 2003* that seeks to reduce forest wildfires through the creation of healthy forests by the thinning of undergrowth and trees in nearly 20 million acres of federal lands (available at http://www.healthyforests.gov/index.html).

Program activities will expand science-based knowledge and technologies to support the efficient, economical, and environmentally friendly conversion of biomass, more specifically agricultural and forestry residuals into value-added industrial products and biofuels.

The long term goals (10-years) for the program include increasing the production of fuels, chemicals, and materials from biomass; increasing the inventory of biobased products for replacement of petroleum based products; and the reduction of costs associated with the conversion of biomass to fuels and industrial products by developing biocatalysts that can convert low cost agricultural and forestry feedstocks.

FY 2007 Priorities for Research - The program will focus on biological processes for biomass conversion and post harvest biomass;

1) Improvement/Development of cost effective biocatalysts for hydrolyzing agricultural and forestry lignocellulosic biomass to produce lower cost feedstocks for the production of industrial biobased products and biofuels;

2) Improved production and processing technologies for the biological modification of agricultural and forestry biomass to aid in the production of high-value industrial biobased products and biofuels. The program is seeking applications which specifically address the pretreatment and conversion steps that limit the technical and economic efficiency of biological production of industrial biobased products from agricultural and forestry residuals; and

3) Innovative non-food uses for agricultural and forestry residuals and under-utilized co-products for the sustainable production of value-added industrial products.

Other Key Information

- **Project Directors wishing to submit research projects to the Biobased Products and Bioenergy Production Research Program must submit by email a letter of intent to Chavonda Jacobs-Young (**cjacobs@csrees.usda.gov**) by 5:00 P.M. Eastern Time on November 8, 2006.** Letters must be submitted in PDF format and contain: 1) a descriptive title of the proposed project; 2) names and roles of the project directors and other key personnel, along with their institutions; and 3) a brief statement of approaches and objectives, including identifying the program priority to which the project is responding (500 words or less). These letters will be reviewed for relevance to program priorities, innovation, and potential scientific impact. A response to the letter encouraging or rejecting a full application will be communicated to the project director by **November 22, 2006**. The National Program Leader will not provide feedback regarding content in the letter. **Electronic applications for invited research proposals must be submitted by 5:00 P.M., Eastern Time, January 17, 2007. Only those project directors receiving notification from the National Program Leader encouraging a formal application may submit a full application. No other applications will be considered.**

- Applications that focus on plant biochemistry should be submitted to the Plant Biology (C): Biochemistry Program. Applications focused on plant genetics should be submitted to the Plant Biology (A): Gene Expression and Genetic Diversity Program. Animal feed, fertilizer, bioremediation, market analysis, and economic analysis applications should not be submitted to this program.

- Biodiesel research is limited to co-product development for the production of value-added industrial products. Engine performance testing and emissions characterization will not be supported.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

75.0 Nanoscale Science and Engineering for Agriculture and Food Systems

Nanoscale Science and Engineering for Agriculture and Food Systems will not be offered in FY 2007. This program is offered in alternate years and will be accepting applications again in FY 2008 at an anticipated level of approximately $5 million, representing the program's funding budget for two years. For additional information on the program, please contact National Program Leader Dr. Hongda Chen (202-401-6497 or hchen@csrees.usda.org).

Nutrition, Food Safety and Quality Program Cluster Overview

The Nutrition, Food Safety and Quality program cluster addresses CSREES' strategic goals to ***improve the Nation's nutrition and health***, ***to enhance protection and safety of the Nation's agriculture and food supply*** and ***to enhance economic opportunities for agricultural producers***.

The maintenance of human health is significantly affected by the quantity and types of food consumed and foods that are contaminated with disease-causing microorganisms or toxins. Nutrition, obesity prevention, and food safety are of paramount importance to the producer, processor, distributor, and consumer. The overall goals of the Nutrition, Food Safety and Quality program cluster are to:

1) Improve our understanding of the behavioral and environmental factors that influence obesity and lead to the development and evaluation of effective interventions for obesity prevention;

2) Contribute to our knowledge of the requirements and bioavailability of food components and factors (including food processing technologies and interrelationships among dietary components) that impact optimal human nutrition or food quality; and

3) Increase our understanding of disease-causing pathogens and toxins, the risk factors that influence foodborne organisms and food safety, and the risk factors that lead to the development and implementation of mitigation or control strategies.

Data generated from these studies will be used for updating dietary recommendations, formulating national nutrition and food safety policy, and stimulating new product developments by the food industry.

In FY 2007 the NRI invites applications in the following cluster of programs related to Nutrition, Food Safety and Quality:

Human Nutrition Programs

31.0 Bioactive Food Components for Optimal Health
31.5 Human Nutrition and Obesity

Food Safety and Quality Programs

32.0 Food Safety
32.1 Epidemiological Approaches for Food Safety
71.1 Improving Food Quality and Value

Nutrition, Food Safety and Quality Program Descriptions

31.0 Bioactive Food Components for Optimal Health

Investigators are encouraged to contact National Program Leader Dr. Etta Saltos (202-401-5178 or esaltos@csrees.usda.gov) regarding questions about the suitability of research topics. Proposed research project budget requests must not exceed $500,000 (including indirect costs) for periods of 2-4 years and proposed integrated project budget requests must not exceed $750,000 (including indirect costs) for periods of 2-4 years. Requests for funding above $500,000 for research projects and $750,000 for integrated projects will be returned to the applicant without review. The total amount of support available for this program will be approximately $3.6 million for research grants and $1.5 million for integrated grants. ***Note: This program requires a letter of intent by November 8, 2006 (5:00pm ET) for both research and integrated applications prior to application submission. Applications submitted without an approved letter of intent will not be reviewed. Please review content in the Other Key Information portion for additional information.*** *Program Deadline: Electronic applications for invited proposals must be submitted by 5:00 P.M., Eastern Time, January 17, 2007.*

Background

The consumption of a nutritious diet is important for maintaining long-term health and decreasing the risk for chronic disease. The primary objective of this program is to support research to improve our understanding of the role of foods and their biologically active components in promoting health throughout the life cycle, including pregnancy, early development, and aging. Bioactive food components are constituents in foods other than those needed to meet basic human nutritional requirements that are responsible for changes in health status. This program also continues to support novel research regarding the function of nutrients. Program objectives are relevant to the research recommendations outlined in the Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2005.

To meet these identified needs of agriculture, the long-term (10-year) goal of the program is to provide evidence concerning health effects of bioactive food components that can be used by scientific organizations in setting dietary reference intakes and tolerable upper limits for such components (e.g. omega-3 fatty acids, conjugated linoleic acid, soy phytoestrogens, and resveratrol). The program will coordinate with other NRI programs in supporting the development of novel and health-enhancing foods.

FY 2007 Priorities for Research Activities

1) Mechanistic studies of the bioavailability, function, efficacy and safety of bioactive dietary components at levels which would be expected to be consumed in the diet;

2) Interrelationships among bioactive dietary components and/or nutrients in promoting health; and

3) Novel studies of the functions and mechanisms of regulation of vitamins and minerals.

Other Key Information – Research Activities

- Multi-disciplinary approaches are encouraged.

- Projects to develop biomarkers to measure human health outcomes or projects that use agriculturally important domestic species as models for human health outcomes are encouraged.

- Applications dealing with food processing techniques should consider submission to the Improving Food Quality and Value Program (71.1) unless they are clearly oriented toward dietary effects on optimal human health.

FY2007 Priority for Integrated Activities

1) *This is a shared priority of Programs 31.0 and 71.1.* Identification, processing, and tailoring of functional foods to promote energy balance, with an emphasis on efficacy and safety. Integrated projects should include a whole foods approach to developing functional foods that promote energy balance and optimal health.

(a) Applicants are strongly encouraged to seek collaboration with industry;

(b) Where applicable, use of populations at high risk for developing obesity in studies is strongly encouraged;

(c) Projects should include expertise in multiple disciplines, including nutrition and food science; and

(d) Projects that incorporate interdisciplinary training of graduate students and postdoctoral researchers in nutrition, food science, and related disciplines are strongly encouraged.

Other Key Information – Integrated Activities

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

Other Key Information – Research and Integrated Activities

- **Project Directors wishing to submit research or integrated projects to Bioactive Food Components for Optimal Health program must submit by email a letter of intent to Etta Saltos (esaltos@csrees.usda.gov) by 5:00 P.M. Eastern Time on November 8, 2006.** Letters must be submitted in PDF format and contain: 1) a descriptive title of the proposed project; 2) names and roles of the project directors and other key personnel, along with their institutions; and 3) a brief statement of approaches and objectives, including identifying the program priority to which the project is responding (500 words or less). These letters will be reviewed for relevance to program priorities, innovation, and potential scientific impact. A response to the letter encouraging or rejecting a full application will be communicated to the project director by **November 22, 2006**. The National Program Leader will not provide feedback regarding content in the letter. **Electronic applications for invited research and invited integrated proposals must be submitted. by 5:00 P.M., Eastern Time, January 17, 2007. Only those project directors receiving notification from the National Program Leader encouraging a formal application may submit a full application. No other applications will be considered.**

- Support will not be provided for research on the development of dietary supplements or research on dietary therapies for metabolic disorders, infectious diseases, cancer, and alcohol-related disorders, or for the establishment, expansion, or maintenance of dietary databases**.**

- Surveys of the nutritional status of population groups are not acceptable for this program, but may qualify for submission to the Human Nutrition and Obesity Program (31.5).

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

31.5 Human Nutrition and Obesity

Investigators are encouraged to contact National Program Leader(s) Dr. Etta Saltos at (202-401-5178 or esaltos@csrees.usda.gov) or Dr. Susan Welsh at (202-720-5544 or swelsh@csrees.usda.gov) regarding questions about suitability of research topics and integrated activities. Proposed research project budgets must not exceed $500,000 (including indirect costs) and proposed integrated project budgets must not exceed $1.5 million (including indirect costs) for integrated projects for periods of 2-4 years. Budget requests over $1 million are expected to be multi-investigator and/or multi-institutional. Application budget requests must not exceed $500,000 for research projects and $1.5 million for integrated projects. Application requests that exceed the guideline limits will be returned to the applicant without review. The total amount of support available for this program will be approximately $10.5 million with approximately $9.5 million for integrated projects and $1 million for research projects. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, June 5, 2007.

Background

This crosscutting program addresses the complex problem of obesity prevention. Projects funded by this program are intended to lead to a better understanding of the behavioral and environmental factors that influence obesity and to the development and evaluation of effective interventions to prevent obesity. Obesity is the number one nutritional problem in America. Food is an integral part of the process that leads to obesity, and USDA has a unique responsibility for the food system in the United States.

To meet the identified needs of agriculture, the long-term (10-year) goals for this program are that: the behavioral and environmental factors that influence obesity will be sufficiently well understood to develop effective obesity prevention strategies; valid behavioral and environmental instruments for measuring progress in obesity prevention efforts will be available; and effective strategies for preventing overweight and obesity will be available. The ultimate goal of the program is to stem the rising tide of obesity.

The milestones toward reaching these long-term goals include: theories on how behavioral and environmental factors influence obesity will be in development; testing will be underway on the validity of behavioral and environmental measures for evaluating success in obesity prevention efforts; and testing will be underway on the effectiveness of strategies for preventing overweight and obesity.

FY 2007 Priorities for Integrated Activities

1) Improve our understanding of the behavioral and community environment factors that influence obesity and use this new information to develop effective intervention strategies for preventing obesity; and

2) Develop and implement behavioral and environmental instruments to measure progress in obesity prevention efforts.

Examples of potential study areas for factors influencing obesity are: social and psychological factors; the role of lifestyle; and the influence of economic factors and agricultural and public policy issues. We are particularly interested in the role of the family in preventing childhood overweight.

FY 2007 Priorities for Research

1) Improve our understanding of the behavioral and community environment factors that influence obesity. Examples of priority focus areas for research are the same as for integrated projects; and

2) Epidemiological studies related to these priorities may involve secondary analyses of large national databases.

Other Key Information - Research and Integrated Activities

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- Complex projects involving multiple institutions or functions should include a management plan that demonstrates that the project will be carried out efficiently.

- Because food is an integral part of the development of obesity, all projects should address some aspect of food from production to consumption.

- It is expected that most projects will be multidisciplinary because obesity is such a multifaceted problem. It is expected that the project team will have appropriate training and experience in the disciplines represented, especially nutrition.

- Graduate student participation in projects is encouraged.

- The development of effective instruments for assessing progress in preventing obesity may necessitate the development of new instruments or the modification and validation of existing ones related to food, physical activity, and the community environment. Intervention may target individuals, groups, market segments, or communities. Of special interest are population groups at increased risk for the development of obesity, such as children, racial and ethnic minorities, and those who are economically or educationally disadvantaged, such as those served by USDA's nutrition assistance and education programs. The rationale for the selection of a particular population group should be documented.

- Applications that focus on the use of functional foods to prevent obesity should consider submission to the Bioactive Food Components for Optimal Health program (31.0). Applications that focus on food

processing or production related to energy balance should consider submission to the Improving Food Quality and Value program (71.1). Applications that focus primarily on medical therapies for disease should not be submitted to this program.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

32.0 Food Safety

Investigators are encouraged to contact National Program Leader Dr. Chris Wozniak (202-401-6020 or cwozniak@csrees.usda.gov) regarding questions about suitability of research topics. Application budget requests must not exceed $400,000 (including indirect costs) for project periods of 2-4 years. Requests for funding above $400,000 will be returned to the applicant without review. The total amount of support availability for this program will be approximately $4.7 million. Program Deadline: Electronic applications must be submitted by 5:00 P.M. Eastern Time, December 14, 2006.

Background

One of the main objectives of this program is to fund research efforts which result in a demonstrable reduction in food-borne illness. This program supports hypothesis driven research that seeks to increase our knowledge of microbial ecology with regard to the routes of contamination of food; this includes on-farm investigations, post-harvest incidence, processing, and distribution of food. Aspects of microbial ecology that provide for avenues of intervention and mitigation of food-borne illnesses or toxicities are also relevant to this program.

The long-term (10-year) goals of this program are to reduce the number of food-borne illnesses in the U.S. and provide for the safe and economic regulation of food safety issues. A primary function of this program is to provide data and information to risk assessors investigating emerging and ongoing food safety problems. In this regard, areas of focus will be assessed year to year to re-examine priorities and adjust the emphasis in response to emerging issues, as appropriate.

FY 2007 Priorities for Research

1) Human enteric viruses and *Vibrio* spp. associated with seafood: Proposed studies need to address imposition of mitigation measures aimed at reducing the incidence of human enteric viruses and *Vibrio spp.* in shellfish, finfish, and derived products. Focus on harvesting methods, post-harvest storage, or processing technologies should include practical methods to reduce pathogen load;

2) Human enteric viruses, *E. coli* or *Salmonella spp.* on fresh fruits, nuts, and vegetables: Proposed studies need to address mitigation measures aimed at reducing colonization by these pathogens or cross contamination during packaging and processing of fresh produce, including fruits, nuts, vegetables, and sprouts which undergo minimal processing post-harvest; multiplication on or within produce; or sensor/detection methodologies linked to practical mitigation measures. Studies elucidating the source and persistence of pathogens in the environment as they relate to fresh produce are included; and

3) *Salmonella spp.* or *Campylobacter spp.* in poultry and swine: Proposed studies need to address the pathogen load of *Salmonella spp.* or *Campylobacter spp.* on farm and the methods of transmission to poultry and swine; effective mitigation measures during processing and distribution; or genetics of strain development for antibiotic resistance and other virulence determinants.

Other Key Information

- Fresh fruits, nuts, and vegetables include those sold without processing and fresh-cut: fresh fruits and vegetables for human consumption that have been peeled, sliced, chopped, shredded, cored, trimmed, or mashed, with or without washing, prior to being packaged (*e.g.* pre-cut, packaged, ready-to-eat salad mixes). Studies directed at irrigation, water re-use and related hydrological issues as they pertain to food safety should consider submission to the Water and Watersheds program (26.0). Proposed studies which focus on worker hygiene as it relates to produce contamination should consider submission to the 406 National Integrated Food Safety Initiative for submission of applications.

- Surveillance as a principal objective is not suitable for this program. Research to quantify or monitor the incidence of organisms responsible for food-borne illness must also seek to ascertain other aspects of virulence, pathogenicity, biochemistry of toxin production, ecology, or genetics in addition to the enumeration of incidence, pathogen load, or frequency.

- Applications that contain hypothesis driven research targeting improved or novel detection methods for the designated microorganisms will be considered for funding, however, they must be of direct value in mitigating, reducing, or managing the offending agent or disease causing entity, or in providing a greater understanding of the routes of food contamination and the biology of the offending agent. Research aimed solely at development of a detection methodology will not be considered for review. Applicants are encouraged to speak with the National Program Leader before submission of applications regarding detection methodologies. Coordinating the proposed study with the appropriate industry is highly recommended.

- Applications may be structured from a pre-harvest or post-harvest approach as appropriate. Economic or model-based analyses of these priority areas will also be considered for review, especially if they address issues of regulatory burden and impacts on trade.

- Applications dealing with food processing techniques or the utilization and production of foods designed to improve food quality should consider submission to the Improving Food Quality and Value Program (71.1). Food safety applications examining the epidemiological aspects of microbes associated with food-borne illness should consider submission to the Epidemiological Approaches to Food Safety Program (32.1).

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

32.1 Epidemiological Approaches for Food Safety

Investigators are encouraged to contact National Program Leader Dr. Mary E. Torrence (202-401-6357 or mtorrence@csrees.usda.gov) regarding questions about suitability of research topics. Proposed budget requests must not exceed $1million for standard research or integrated project for periods of 3-4 years. Requests for funding above $1 million will be returned to the applicant without review. The total amount of support available for this program will be approximately $4 million with approximately $3.5 million for research projects and approximately $500,000 for integrated activities. Program Deadline: Electronic applications must be submitted by 5:00 pm, Eastern Time, December 14, 2006.

Background

Research that develops an understanding of the multiple factors involved in food safety and provides the science-based data for policy decisions requires epidemiological studies. Epidemiological studies of pre- and post-harvest areas are vital to identify and characterize pathogenic organisms, including their sources and reservoirs; and to understand the transmission of the pathogen along the entire continuum. The identification of risk factors for exposure to and infection by these pathogens can be accomplished by several different epidemiological research methodologies. Environmental and ecological data are needed to increase our understanding of disease-causing microorganisms, their products, and naturally occurring contaminants in meats, poultry, seafood, and fresh fruits and vegetables. Epidemiologic research provides the scientific approach to study the distribution and determinants of disease and health-related events in a population and uses that analysis for prevention and control. Most of the research looks at interactions among the environment, agriculture, and human populations with the goal of decreasing foodborne disease as well as antimicrobial resistance.

The long term goals (10-year) for this program are to: 1) enhance the epidemiologic methods available for the study of foodborne diseases and other public health issues; 2) to further advance the understanding of the epidemiology of foodborne disease and the food system on a continuum, and 3) provide more recommendations for specific intervention strategies/prevention and control programs for foodborne disease and antimicrobial resistance.

Applications **must have** a primary central focus on population-based epidemiological studies. The applications **must have** an epidemiologist as an active participant of the study, such as a co-investigator. *Applications concentrating strictly on laboratory methods or techniques will **not** be accepted. Method developments should be submitted to the Food Safety program (32.0).* Simple prevalence studies or studies that have already been done numerous times are **not** encouraged. Population-based studies that provide data for identified data gaps from risk assessments or provide epidemiologic data for on-going risk assessments will be considered. *Pure risk assessment methodologies or modeling studies are **NOT** eligible. Surveillance studies simply for surveillance are* **NOT** *eligible.*

FY 2007 Priorities for Research

1) Development of *novel* epidemiologic approaches (with or without a microbial component) that will provide the ability to *evaluate* the impact of intervention or management strategies on microbial contamination or food safety. These may include epidemiological methods that will facilitate the understanding of quantitative data on pathogen load within the farm-to-fork continuum and facilitate the linking of pre-harvest and post-harvest food safety outcomes to public health outcomes;

2) Innovative studies which seek to *quantify* the effectiveness of new or existing interventions or management strategies in reducing pathogen loads across farm-to-fork; and

3) Innovative studies which seek to **identify new** risk factors or *quantitative evaluation* of existing risk factors that may affect prevalence, transmission, or persistence of foodborne organisms across farm-to-fork continuum.

FY 2007 Priority for Integrated Activities

1) Implementation of effective intervention or management strategies to reduce pathogen load across farm to fork. These projects *must include epidemiological* evaluation or quantification of impact or effectiveness of potential strategies as well as education and/or extension programs for transfer of successful methodologies to industry partners and other scientists.

Other Key Information

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- Near term goals that will help fulfill the long term goals include: 1) emphasizing new innovative epidemiologic and statistical methodology; 2) emphasizing more intervention studies and discouraging simple prevalence studies; and 3) emphasizing potential projects/methodologies for emerging issues in food safety and public health (including food biosecurity and antimicrobial resistance). One parallel activity will be to encourage the food safety-CAP to fund high risk pilot research that can be used as preliminary data for epidemiologic applications and to encourage research and methods for dealing with emerging issues, specifically food biosecurity.

- Integrated projects should involve collaboration with institutions, organizations, and communities of interest. Strong partnerships are encouraged, such as those that form consortiums or collaborative networks. Innovative multidisciplinary collaborations and partnerships are those designed to build solutions to understanding the interrelationships of the various factors that affect the safety of our food supply. Applications that combine the knowledge of multiple disciplines, i.e. veterinarians, food microbiologists,

epidemiologists, public health specialists or other scientific disciplines, in order to gain the comprehensive understanding needed to solve complex problems are requested.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

71.1 Improving Food Quality and Value

Investigators are encouraged to contact National Program Leaders(s) Dr. Ram Rao at (202-401-6010 or rrao@csrees.usda.gov) or Dr. Hongda Chen at (202-401-6497 or hchen@csrees.usda.gov) regarding questions about the suitability of research ideas and integrated activities. Proposed budget requests must not exceed $300,000 (including indirect costs) for single investigator led projects for 2-4 years, and $500,000 (including indirect costs) for multidisciplinary and multiple researchers or multi-institution projects for 2-4 years. For integrated projects, proposed budget requests must not exceed $750,000. Requests for funding above $300,000 for single investigator led projects, $500,000 for multidisciplinary and multiple researcher or multi-institution projects, or $750,000 for integrated projects will be returned to the applicant without review. The total amount of support available for this program will be approximately $6.5 million with up to $2 million for integrated projects. Note: ***This program requires a letter of intent by November 8, 2006 (5:00pm ET) prior to application submission. Applications submitted without an approved letter of intent will not be reviewed. Please review content in the Other Key Information portion for additional information.*** *Program Deadline: Electronic applications for invited proposals must be submitted by 5:00 P.M., Eastern Time, January 17, 2007.*

Background

Improving food quality and value is driven by the application of physical, chemical and biological principles and is essential in meeting the needs of the consumer as well as enhancing competitiveness in global markets.

The long term goals (10-year) of this program are to formulate ingredients based on the knowledge of chemical and physical interactions for better functionality of foods; develop new and improved technologies to produce better foods; and produce foods to promote optimum health of individual citizens.

Priorities for Research:

1) Basic mechanisms involved in the interaction of micro- and macromolecules in the food matrix (e.g. protein-polysaccharide interaction) in controlling structure, texture, stability, and flavor delivery in foods. This includes (a) the fundamental understanding of the mechanism of interaction of proteins, polysaccharides, and lipids in foods (e.g. covalent, ionic, hydrophilic, and hydrophobic, structures, kinetics); and (b) factors influencing the complexation and segregation of these macromolecules (e.g. processing environment, storage conditions and other food ingredients), and the resultant quality of foods (e.g. predictive modeling and food product quality);

2) Advanced and innovative processing, engineering, and technologies that enhance food quality attributes, and development and applications of analytical characterization techniques of physical, chemical, biological, and sensory natures; and

3) Chemistry and fates of proven bioactive compounds in foods and food ingredients during processing, packaging, storage, distribution and delivery.

Priorities for Integrated Activities

1) *This priority is shared among Programs 31.0 and 71.1.* Identification, processing, and tailoring of functional foods to promote energy balance, with an emphasis on efficacy and safety. Integrated projects should include a whole foods approach to developing functional foods that promote energy balance and optimal health.

(a) Applicants are strongly encouraged to seek collaboration with industry;

(b) Where applicable, use of populations at high risk for developing obesity in studies is strongly encouraged;

(c) Projects should include expertise in multiple disciplines, including nutrition and food science; and

(d) Projects that incorporate interdisciplinary training of graduate students and postdoctoral researchers in nutrition, food science, and related disciplines are strongly encouraged; and

2) Advanced and innovative processing engineering and technologies that enhance food quality attributes, development, and application of analytical characterization techniques of physical, chemical, biological, and sensory natures.

Other Key Information – Integrated Activities

- Collaboration with the industry is strongly encouraged.

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

Other Key Information - Research and Integrated Areas

- **Project Directors wishing to submit research or integrated projects to the Improving Food Value and Quality program must submit by email a letter of intent to Dr. Ram Rao (**rrao@csrees.usda.gov**) by 5:00 P.M. Eastern Time on November 8, 2006.** Letters must be submitted in PDF format and contain: 1) a descriptive title of the proposed project; 2) names and roles of the project directors and other key personnel, along with their institutions; and 3) a brief statement of approaches and objectives, including identifying the program priority to which the project is responding (500 words or less). These letters will be reviewed for relevance to program priorities, innovation, and potential scientific impact. A response to the letter encouraging or rejecting a full application will be communicated to the project director by **November 22, 2006**. The National Program Leader will not provide feedback regarding content in the letter. **Electronic applications for invited research and integrated proposals must be submitted by 5:00 P.M., Eastern Time, January 17, 2007. Only those project directors receiving notification from the National Program Leader encouraging a formal application may submit a full application. No other applications will be considered.**

- Improving Food Quality and Value Program funds applications in the post harvest area.

- Multi-disciplinary approaches are highly encouraged.

- Applications addressing combined and inseparable quality and safety objectives will be entertained in this program. However, applications dealing primarily with issues of food safety should consider submission to the Food Safety Program (32.0). Applications dealing with bioavailability, metabolism and mechanism of action of bioactive food components should be sent to the Bioactive Food Components for Optimal Health Program (31.0).

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

Agroecosystems and Rural Prosperity Program Cluster Overview

The Agroecosystems and Rural Prosperity program cluster primarily addresses CSREES' strategic goals to ***protect and enhance the Nation's natural resource base and environment and to support increased economic opportunities and improved quality of life in rural America.*** It also supports CSREES' strategic goal of ***enhancing protection and safety of the Nation's agriculture and food supply***.

Agroecosystems are inherently complex, being composed of agricultural, natural, and social systems. The fundamental concept behind this cluster of programs is the application of ecological, economic, and sociological principles to agricultural and community systems. The concept of agroecosystems can be applied within agriculture, rangeland, forested, or community systems at a range of spatial scales including the field, family, the farm level enterprise, the landscape, watershed, institutional, or community. Agricultural and community systems, as managed systems involving human interactions and use of inputs, are influenced by and, in turn, influence the natural systems surrounding them.

Human well-being is inextricably linked to the sustainable use and management of agroecosystems. The fundamental purpose of agriculture is to manage ecological structures, functions, and processes so as to favor human needs. The concept of sustainable agroecosystem management allows for achieving the traditional agricultural goal of production while balancing the goals of conservation and protection of natural resources, mitigation of environmental impacts, maintenance of ecosystem services, and rural community viability. One benefit of the agroecological approach is that it accommodates a broad range of performance criteria in addition to increased production, such as ecological goods and services, sustainability, food security, economic viability, resource conservation, social equity, and community vitality. These criteria provide focus for the various programs.

The overall goal of the Agroecosystems and Rural Prosperity program cluster is to support research and integrated projects that will address the design or function of productive agriculture and rural communities that sustains yields and rural prosperity while minimizing the negative environmental impacts of agricultural practices and technologies on surrounding natural ecosystems. Addressing the degree to which agriculture and rural communities are sustainable is a critically important goal relevant to all USDA mission areas.

In FY 2007, the NRI invites applications in the following cluster of programs related to Agroecosystems and Rural Prosperity:

Natural Resources Programs:

- 25.0 Soil Processes
- 26.0 Water and Watersheds
- 27.0 Global Change Initiatives
- 28.0 Air Quality

Environmental Systems Programs:

- 23.1 Managed Ecosystems
- 51.9 Biology of Weedy and Invasive Species in Agroecosystems

Farm and Community Systems Programs:

- 62.0 Rural Development
- 66.0 Agricultural Prosperity of Small and Medium-Sized Farms

Agroecosystems and Rural Prosperity Program Descriptions

23.1 Managed Ecosystems

Investigators are encouraged to contact National Program Leader Dr. Diana Jerkins (202-401-6996 or djerkins@csrees.usda.gov) regarding questions about suitability of research topics and integrated activities.

Proposed research project budget requests must not exceed $400,000 (including indirect costs) and proposed integrated project budgets requests must not exceed $500,000 (including indirect costs) for project periods of 2-4 years. Requests for funding above $400,000 for research projects and $500,000 for integrated projects will be returned to the applicant without review. The total amount of support available for this program will be approximately $4 million with approximately $1.5 million for integrated projects and $2.5 million for research projects. ***Note: This program requires a letter of intent for both research and integrated applications by October 5, 2006 (5:00pm ET) prior to application submission. Applications submitted without an approved letter of intent will not be reviewed. Please review content in the Other Key Information portion for additional information.*** *Program Deadline: Electronic applications for invited research and integrated proposals must be submitted by 5:00 P.M., Eastern Time, December 14, 2006.*

Background

The goals of the Managed Ecosystems program are to protect and enhance the natural resource base and environment through the appropriate use and management of agricultural ecological models; enhance economic opportunities by increasing productivity and ecosystem services; and improve the quality of life in rural America through improved environmental quality.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are: develop, quantify and verify predictive, multifunctional agroecosystem management systems, and conduct experimental studies that will concurrently optimize resource use efficiency while increasing product and environmental quality; and develop indicators for land resource use assessment and quantify agroecosystem changes. Over the long term, projects will involve the design and verification of managed ecosystems, and dissemination and use of innovative management strategies.

This program will take a systems approach. Systems research is multidisciplinary and focuses on the interrelationship between management practices and response to biological, physical, economic, and social processes. A systems approach will be able to demonstrate agricultural sustainability and identify points of sensitivity and synergy between system components. Managed ecosystems that will be designed and evaluated must be multi-functional, i.e. provide agricultural product and ecosystem services and lead to increased sustainability (system balance) over time.

FY 2007 Priorities for Research

1) Agroecosystem functions – Identify and evaluate mechanisms and biogeochemical processes to improve agricultural productivity and environmental quality. Show linkages and effects between multiple system functions and biogeochemical cycles;

2) Multifunctional management systems – Create, quantify, and verify adaptive management systems that *concurrently* provide for both agricultural productivity and ecosystem services. Management must be multifunctional, i.e. include coupled, multiple environmental (natural resource) components and lead to improved product, environmental quality and ecosystem services. Systems may include economic valuation of market and non-market ecosystem services. Models developed should be predictive to allow for changes in the system over time as system functions respond/adapt to management practices and external drivers; and

3) Monitoring systems quality – Develop interdisciplinary approaches and processes to monitor agroecosystems to quantify improvements in production quality and environmental quality or ecosystem changes due to implementation of multifunctional management systems and strategies. Creation of monitoring technologies may be part of the monitoring process and should be verified as part of an applied research project. (Creation of monitoring technologies exclusively will not be funded through this program, but should consider submission to the SBIR competitive programs).

FY 2007 Priority for Integrated Activities

1) Development and use of multifunctional management strategies with emphasis on information dissemination and training on management methods as well as development of curricula on systems research procedures and/or ecological systems functions.

Other Key Information - Research and Integrated Activities

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- **Project Directors wishing to submit research or integrated projects to Managed Ecosystems program must submit by email a letter of intent to Diane Jerkins (djerkins@csrees.usda.gov) by 5:00 P.M. Eastern Time on October 5, 2006.** Letters must be submitted in PDF format and contain: 1) a descriptive title of the proposed project; 2) names and roles of the project directors and other key personnel, along with their institutions; and 3) a brief statement of approaches and objectives, including identifying the program priority to which the project is responding (500 words or less). These letters will be reviewed for relevance to program priorities, innovation, and potential scientific impact. A response to the letter encouraging or rejecting a full application will be communicated to the project director by **October 19, 2006**. The National Program Leader will not provide feedback regarding content in the letter. **Electronic applications for invited research and invited integrated proposals must be received by 5:00 P.M., Eastern Time, December 14, 2006. Only those project directors receiving notification from the National Program Leader encouraging a formal application may submit a full application. No other applications will be considered.**

- If the integrated project involves education, the approach should utilize integrative, multidisciplinary managed ecosystem thematic areas for: curricula design, development and implementation; the identified degree level (baccalaureate, masters, or doctoral); and/or experiential learning opportunities for undergraduate programs or provide a cutting edge scientific research environment for graduate level training. For additional support of educational opportunities refer to the Higher Education Challenge Grants Program, Higher Education Multicultural Scholars Program or Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowship Grants Program funding opportunities. To learn more about these programs, visit the website http://www.csrees.usda.gov/fo/funding.cfm.

- Applications must address agricultural production systems. Development of management strategies should be limited to the following areas: 1) crop, 2) range/prairie, 3) forest, 4) grassland. These systems may be at the rural level or urban agricultural interface. Animal systems may be incorporated as part of the listed four agriculture production systems. Projects may also have systems integration by combining systems, for example crop/range/livestock.

- If the project involves model development, the model should conceptualize either new or improve existing models. The project must include field testing for verification of the model.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

25.0 Soil Processes

Investigators are encouraged to contact National Program Leader Dr. Nancy Cavallaro (202-401-4082 or ncavallaro@csrees.usda.gov) regarding questions about suitability of research topics. Proposed budget requests must not exceed $400,000 (including indirect costs) for research project periods of 2-4 years. Budget requests over

$325,000 are expected to be multi-institutional. Requests for funding above $400,000 will be returned to the applicant without review. The total amount of support available for this program will be approximately $3.5 million. ***Note: This program requires a letter of intent by December 6, 2006 (5:00pm ET) prior to application submission. Applications submitted without an approved letter of intent will not be reviewed. Please review content in the Other Key Information portion for additional information.*** *Program Deadline: Electronic applications for invited proposals must be submitted by 5:00 P.M., Eastern Time, February 14, 2007.*

Background

Soil is a vital natural resource that not only sustains plant and animal productivity, but also has profound effects on the health and quality of the environment. As such, agriculturally-related sustainability hinges on the interactions among the biological, chemical, and physical properties and processes in this below-ground ecosystem. Soil properties and soil processes influence air and water quality as well as ecosystem, plant, and animal health and productivity as well as climate. Significant strides have been made in understanding, for example, the impact of organic amendments on soil microbial biomass and the rate of water infiltration. However, more science-based knowledge is needed to fill gaps regarding the interactions of the properties and processes affecting soil quality as it relates to agricultural sustainability.

Understanding the complex interactions among the physical, chemical, and biological characteristics and processes in soils requires an interdisciplinary approach. These soil characteristics impact the availability of water and nutrients to plants and other organisms in the soil ecosystem, and subsequently plant, animal and human health and well-being. At the same time, it is critical to recognize the spatial and temporal variability among soil properties and processes which also affect agricultural productivity and sustainability. Tools are now being developed that will allow us to explore and understand soil mineral-organic matter-fluid-gas-microbe interactions at micro- and nano-scales. The processes occurring at these small-scale interfaces are of central importance to understanding the soil's role in larger scale biogeochemical cycles and to improving soil management. Soils play an important role in ecosystem scale processes and biogeochemical cycles at the catchment to regional scales. Ground collected and remotely sensed spatial data is increasingly available, as is software for analyses, visualization, and modeling. Soil scientists have the opportunity to significantly improve our understanding of the role soil plays in large scale environmental processes through utilization of these sources of data in concert with advanced tools to analyze complex systems.

Below and above-ground activities, including management practices such as tillage, amendments and cropping sequence, modulate properties, and functions in the soil ecosystem. Science-based knowledge that leads to the clarification and understanding of the interactions among soil physical, chemical and biological processes is needed. Ultimately, this should result in the application of such science-based knowledge to the development of practical tools, strategies, and predictive models that enhance agricultural productivity at the farm level while negating or ameliorating detrimental effects on natural resources, including soils.

The long-term goal (10-year) for this program is to generate science-based knowledge that will lead to development, adoption and implementation of practices and tools that will ensure improved soil health and productivity. This means reduced contamination and increased efficiency of resource management and agricultural production, while maintaining soil and ecosystem health. Improvement in soil characteristics, including quality, and reduction of erosion, will increase productivity and enhance sustainability while protecting and enhancing the Nation's natural resources and environment. This program invites research applications for both fundamental and applied research in the following areas:

FY2007 Priorities for Research

1) Interdisciplinary studies of the interrelationships among soil physical, chemical, and biological characteristics and processes related to soil quality and sustainability, especially regarding water and nutrients in relation to agricultural quality and productivity and environmental health. Multi-scale research that can help bridge the gap between molecular and mechanistic process studies and field-landscape- and/or watershed-scale studies is encouraged; and

2) Development and or application of new or improved technologies, methodologies, tools or strategies to enhance our understanding of biological, biogeochemical and physical processes. In addition, these

methods or tools should be used to enhance our understanding of dynamic properties in soils related to agricultural production as well as soil and environmental health, focusing specifically on water, carbon, and nutrient cycles at multiple scales where appropriate.

Other Key Information

- **Project Directors wishing to submit research projects to the Soil Processes program must submit by email a letter of intent to Nancy Cavallaro (ncavallaro@csrees.usda.gov) by 5:00 P.M. Eastern Time on December 6, 2006.** Letters must be submitted in PDF format and contain: 1) a descriptive title of the proposed project; 2) names and roles of the project directors and other key personnel, along with their institutions; and 3) a brief statement of approaches and objectives, including identifying the program priority to which the project is responding (500 words or less). These letters will be reviewed for relevance to program priorities, innovation, and potential scientific impact. A response to the letter encouraging or rejecting a full application will be communicated to the project director by **December 20, 2006**. The National Program Leader will not provide feedback regarding content in the letter. **Electronic applications for invited research proposals must be submitted by 5:00 P.M., Eastern Time, February 14, 2007. Only those project directors receiving notification from the National Program Leader encouraging a formal application may submit a full application. No other applications will be considered.**

- Applicants must articulate the relevance of their research to agriculture, range, and/or forestry.

- Proposed projects should be interdisciplinary and address relevant biotic and abiotic factors and processes. Projects may be fundamental or applied, but must address physical, chemical, and biological aspects from a point of view of the soil *in situ*.

- Model systems, including soil columns, are appropriate but must articulate steps needed to validate interpretations for application to the field.

- Fate and transport of selected pathogens will be addressed in the Water and Watersheds Program (26.0). Applications addressing water quality combined with outreach and education components should consider submission to the CSREES National Integrated Water Quality Program (http://www.csrees.usda.gov/fo/funding.cfm).

- Applications addressing soil insect and arthropod pests or soil borne plant pathogens, and having outreach and education components, should consider submission to the CSREES Integrated Research, Education, and Extension Program in Pest Management (www.csrees.usda.gov/fo/funding.cfm).

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

26.0 Water and Watersheds

Investigators are encouraged to contact National Program Leader Ms. Mary Ann Rozum (202-401-4533 or mrozum@csrees.usda.gov) regarding questions about suitability of research topics. Grants for this program will not exceed $400,000 (including indirect costs) for research projects for project periods of 2-4 years. Requests for funding above $400,000 will be returned to the applicant without review. The total amount of support available for this program will be approximately $5.3 million. Program Deadline: Electronic applications must be submitted by 5:00 P.M. Eastern Time, January 17, 2007.

Background

The goals of the Water and Watersheds program are to protect and enhance the natural resource base and environment by improving and maintaining healthy watershed habitat and water supply protection; improve the quality of life in rural America through adequate clean water supplies; and protect food safety through clean irrigation and livestock drinking water supplies.

The long-term (10-year) goals for this program are: reduce pathogens such as bacteria, viruses, and protozoa in waters derived from agricultural and rural watersheds; and maintain adequate water supplies for agricultural crop and livestock production and rural use.

FY 2007 Priorities for Research

1) Understand the sources, fate, and transport of pathogens such as bacteria, protozoa, and viruses in soil and in surface and ground water systems of agricultural and rural landscapes and watersheds to reduce zoonotic pathogens in the environment. Special emphasis is considered for *Salmonella, Cryptosporidium*, and enteric viruses; and

2) Identify, evaluate, and understand producer management behaviors that improve agricultural water conservation in crop, livestock, and poultry production, with an emphasis on a) projects that integrate hydrologic, economic, and policy components; b) social determinants of water use; and c) documented water savings, especially at spatial scales greater than a single field.

Other Key Information

- Applications addressing integrated research, extension, and education for water resources should consider submission to the CSREES National Integrated Water Quality Program (http://www.csrees.usda.gov/fo/funding.cfm).

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

27.0 Global Change Initiatives

Investigators are encouraged to contact National Program Leader Dr. Nancy Cavallaro (202-401-4082 or ncavallaro@csrees.usda.gov) regarding questions about suitability of research topics. Proposed budget request should range between $300,000 to $600,000 (including indirect costs) for research project periods of 2-3 years. The total amount of support available for this program will be up to $2 million. This program element is in partnership with the Environmental Protection Agency (EPA). Visit the program website (see http://es.epa.gov/ncer/rfa/) for detailed application submission and project deadline information.

Background

The sustainability of our agriculture, forest and rangelands depends on understanding the factors that influence climate change, the mechanisms that may enhance or mitigate this change, and its effects on food and fiber production and our natural resources. In this program, the NRI, either alone or in partnership with programs of other funding agencies, seeks to fund global change related research relevant to agriculture and focusing on the carbon, nitrogen, and water cycles, greenhouse gas fluxes, and land use and land cover change. Program priorities are drawn primarily from the US Climate Change Strategic Plan (*http://www.climatescience.gov/Library/stratplan2003/default.htm*), and include human dimensions of these issues. Long term outcomes will be to improve models, reduce uncertainties in predictions, and understand how to manage our watersheds and agricultural, forest and range lands to mitigate negative consequences or develop adaptations to new conditions.

The Global Change Initiatives Program is partnering this year with the Environmental Protection Agency's Science to Achieve Results (STAR) Program, and the National Aeronautics and Space Administration's Applied Science Program in seeking applications for research on the ecological impacts from interactions of climate change, land use change and invasive species. Through this RFA, USDA/CSREES' NRI Global Change Initiatives Program is particularly interested in research applications to establish cause and effect relationships between climate changes and the abundance and distribution of invasive species, and the impact these species have on agroecosystems, including forest lands, range lands, and cropping systems. The complete RFA can be found at: http://es.epa.gov/ncer/rfa/.

28.0 Air Quality

Investigators *are encouraged to contact National Program Leader Dr. Ray Knighton (202-401-6417 or rknighton@csrees.usda.gov) regarding questions about suitability of research topics. Proposed research project budget requests must not exceed $400,000 (including indirect costs) and proposed integrated project budget requests must not exceed $600,000 (including indirect costs) for project periods of 2-4 years. Requests for funding above $400,000 for standard research projects and $600,000 for integrated projects will be returned to the applicant without review. The total amount of support available for this program will be approximately $5 million with approximately $3 million for integrated projects and $2 million for research projects. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, June 5, 2007.*

Background

Agriculture, forest, and range production practices have increasingly become subject to state and federal regulations that are meant to protect air resources. In many instances, data do not exist or are not representative of agricultural industries for the purpose of estimating emissions to the atmosphere of regulated pollutants or of public nuisances such as odors and fugitive dust.

The long-term (10-year) goals of this program are: a) develop emission data for agriculture, forest, and range production practices that will lead to emission reduction targets based on sound science, thereby significantly improving air quality to protect human and environmental health; b) develop mitigation strategies that will increase adoption of best management practices to reduce agricultural emissions; and c) improve understanding of odor, gases, and particulate matter (PM) measurement, production, flux, fate and transport that will lead to a better understanding of the environmental fate of agricultural atmospheric emissions.

FY 2007 Priorities for Integrated Activities

1) Measurement and Monitoring Integrated projects are solicited to improve measurement protocols/instrumentation and remote sensing to measure and characterize particulate matter and gases for within field/facility and edge-of-field/facility boundaries. Emission data for particulates, odors, and gases is of primary concern and is needed for all aspects of production practices and naturally occurring events such as wind and wet deposition to update existing inventories. Projects are especially encouraged that focus on crop production practices. High priority emission sources and corresponding constituents are:

(a) Tillage, nutrient management, and pest management (especially PM, ammonia and nitrous oxide, and highly reactive VOCs);

(b) Crop harvest and post-harvest practices;

(c) Controlled burning (PM and smoke); and

(d) Animal feeding operations (especially ammonia, PM, VOCs, hydrogen sulfide, methane, odor and odorants).

Additional priority will be given to projects that characterize the physical, chemical, and biological nature of agriculture, forest, and range source aerosols. Projects should identify whether they will address fine particulate matter (< 2.5 microns in diameter) or coarse particulate matter (2.5 to 10 microns in diameter). Research to determine the efficacy of techniques for monitoring and characterizing agriculturally important odors, odorants, and aerosols is also requested;

2) Fate and Transport Integrated projects are needed on the fate and transport of emitted particulates and gases with specific emphasis placed on ammonia and nitrous oxide. Improved models are needed to predict movement and dispersion of air pollutants from production practices and management operations. Process-based mechanistic models using mass balance techniques for component processes of the whole enterprise are of specific interest; and

3) Mitigation Integrated projects on the efficacy of methods for mitigating emissions of nitrogen and other agricultural air pollutants to the atmosphere and the development of best management practices are solicited. Projects will be considered that evaluate the efficacy of conservation practices and other control technologies to reduce particulate and gaseous emissions and economic, social, and policy barriers to implementing practices that reduce emissions.

FY 2007 Priorities for Research

1) Characterizing particulate matter and gases (see priority 1 above); and

2) Fate and transport (see priority 2 above).

Other Key Information - Research and Integrated Activities

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

51.9 Biology of Weedy and Invasive Species in Agroecosystems

Investigators are encouraged to contact National Program Leader Dr. Michael Bowers (202-401-4510 or mbowers@csrees.usda.gov) regarding questions about suitability of research topics and integrated activities. Proposed research project budget requests must not exceed $400,000 (including indirect costs) and proposed integrated project budget requests must not exceed $500,000 (including indirect costs) for project periods of 2-4 years. Requests for funding above $400,000 for research projects and $500,000 for integrated projects will be returned to the applicant without review. The total amount of support available for this program will be approximately $3.6 million with approximately $1.0 million for integrated projects and $2.6 million for research projects. ***Note: This program requires a letter of intent by December 6, 2006 (5:00pm ET) prior to application submission. Applications submitted without an approved letter of intent will not be reviewed. Please review content in the Other Key Information portion for additional information.*** *Program Deadline: Electronic applications for invited proposals must be submitted by 5:00 P.M., Eastern Time, February 14, 2007.*

Background

It has been estimated that approximately 50,000 species of plants and animals have been introduced into the U.S., and that they cause environmental damage and losses adding up to more than $100 billion per year. Invasive species threaten biodiversity, habitat quality, and ecosystem function. It is estimated that invasive species have contributed to the decline of 42% of the U.S. endangered and threatened species. The National Research Council in its report, *Grand Challenges in Environmental Sciences***,** cited the critical importance of addressing invasive species issues[2]. Non-indigenous weeds alone cost US agriculture $7-27 billion per year. Exotic, invasive species are a particularly prevalent feature of agroecosystems and a major threat to food and fiber production. The Council for Agricultural Science and Technology has emphasized the escalating risk of invasive species to agricultural systems[3]. Increased globalization and climate change will likely increase the introduction, spread, and impact of invasive species.

[2] National Research Council 2001. *Grand Challenges in Environmental Sciences*. National Academy Press. 106 pp.
[3]Council for Agricultural Science and Technology. 2002. Invasive Pest Species: Impacts on Agricultural Production, Natural Resources, and the Environment. Louisiana State University, Baton Rouge. 18 pp

The long-term (10-year) goal of the program is to support inter-disciplinary experimental, observational, theoretical, and modeling studies of weedy and invasive species that lead to ecologically and economically rational strategies for management, control, or elimination.

FY 2007 Priority for Research

1) Research that establishes mechanisms determining the abundance and distribution of weedy and invasive species. Such research might investigate cause and effect relationships between the abundance of weedy and invasive species and different cultivation and nutrient management regimes/practices, past and current land use, disturbance (including fire, pests, and grazing), and other landscape features (presence of roads and degree of fragmentation) and/or processes (source-sink population dynamics). Research projects focused on basic ecological and evolutionary processes (pollen movement, propagule dispersal and colonization, differential survival, and fecundity rates) that have clear links to management will be considered.

FY 2007 Priorities for Integrated Activities

1) Development, delivery and implementation of ecologically-based, invasive species management programs and/or strategies; and

2) Early detection–rapid response control strategies, especially those that use remote sensing and mapping.

Other Key Information – Research and Integrated Activities

- **Project Directors wishing to submit research or integrated projects to the Biology of Weedy and Invasive Species in Agroecosystems program must submit by email a letter of intent to Michael Bowers (**mbowers@csrees.usda.gov**) by 5:00 P.M. Eastern Time on December 6, 2006.** Letters must be submitted in PDF format and contain: 1) a descriptive title of the proposed project; 2) names and roles of the project directors and other key personnel, along with their institutions; and 3) a brief statement of approaches and objectives, including identifying the program priority to which the project is responding (500 words or less). These letters will be reviewed for relevance to program priorities, innovation, and potential scientific impact. A response to the letter encouraging or rejecting a full application will be communicated to the project director by **December 20, 2006**. The National Program Leader will not provide feedback regarding content in the letter. **Electronic applications for invited research and integrated proposals must be submitted by 5:00 P.M., Eastern Time, February 14, 2007. Only those project directors receiving notification from the National Program Leader encouraging a formal application may submit a full application. No other applications will be considered.**

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- The program will consider activities (research and integrated) that focus on the biology of weedy and invasive plant and animal species of economic importance to agriculture. Currently, the Program does not support research on pathogenic organisms. The activities proposed should have direct and obvious relevance to the elimination, management, or control of invasive species in agroecosystems, including cropping systems, managed forests, or rangeland. Successful applications will establish links between fundamental biological or ecological relationships and invasive species management plans and strategies. Research that proposes to combine organismal biology (genomics, physiology, and cell biology) with

ecological processes is encouraged. Collaborative teams of land managers weed biologists, soil scientists, population biologists, ecologists, physiologists, biogeochemists, and wildlife managers or those with expertise in simulation modeling and GIS are encouraged to apply. Applications that do not meet the above criteria or do not match the priority areas will be returned without review.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

62.0 Rural Development

Rural Development will not be offered in the FY 2007. This program is offered in alternate years and will be accepting applications again in FY 2008 at an anticipated funding level of approximately $4.8 million. For additional information on the program, please contact National Program Leader Dr. S. (Suresh) Sureshwaran (202-720-7536 or ssureshwaran@csrees.usda.gov).

66.0 Agricultural Prosperity for Small and Medium-Sized Farms

Investigators are encouraged to contact National Program Leader Dr. S. (Suresh) Sureshwaran (202-720-7536 or ssureshwaran@csrees.usda.gov) or Dr. Diana Jerkins (202-401-6996 or djerkins@csrees.usda.gov) regarding questions about suitability of integrated activities. Proposed budget requests must not exceed $500,000 (including indirect costs) for integrated projects for project periods of 2-4 years. Budget requests over $400,000 are expected to be multi-investigator and/or multi-institutional. Requests for funding above $500,000 will be returned to the applicant without review. The total amount of support available for this program will be approximately $5 million. Program Deadline: Electronic applications must be submitted by 5:00 P.M., Eastern Time, February 14, 2007.

Background

Small and medium-sized farms are challenged by limited economic opportunities and increasing concerns about environmental quality, as indicated by their low value of agricultural products sold, decreasing share of the food dollar, and the perceived trade-off between agricultural sustainability and economic viability. In recent years, these challenges have been magnified by changes in market conditions caused by tremendous demographic shifts, new global markets and vertical integration, and the increasing competition for farm land for non-agricultural uses. Therefore, the purpose of this program is to foster interdisciplinary studies to improve our understanding of the interactions between the economic and environmental components important to the long-term viability, competitiveness and efficiency of small and medium-sized farms (including social, biological, and other components, if necessary). These include small and medium-sized dairy, livestock, crop, and other commodity operations. While small and medium-sized farms with less than $500,000 in annual sales account for less than 25 percent of the value of all agricultural products sold in the U.S., the long-term viability of these farms is critical to the prosperity of rural people and places as these farms account for approximately 92 percent of all farms in the United States. Therefore, the program will also foster interdisciplinary studies to enhance income accruing to small and medium-sized farms through value-added activities and in turn, their contribution to rural prosperity.

To meet these identified needs of agriculture, the long-term (10-year) goals for this program are: increase the value of agricultural products sold per farm by small and medium-sized farms through the adoption of environmentally sustainable and economically viable best management practices; increase the share of the food dollar accruing to the small and medium-sized farms and to rural communities by creating on-farm value added activities based on enhanced knowledge of the interactions between changing consumer needs, environmental sustainability, and economic profitability; and adopt ecological practices that will enhance the economic value of the land, operated by small and medium-sized farms, in agricultural use.

FY 2007 Priorities for Integrated Activities

1) Increasing the productivity and profitability of new and existing small and medium sized farms and ranches through education and extension programs based on new knowledge generated by research on factors that advance the economic and environmental integration of on-farm agricultural production and conservation practices;

2) Identification and dissemination of information to enhance the net economic, environmental, and social benefits to small and medium-sized farms of off-farm production-consumption systems, including direct marketing and/or participation in mid-tier food and fiber value chains; and

3) Understanding the impacts of land use change, including the effects of farm transition and farm entry issues, on the profitability of small and medium-sized farms as well as on the ecosystem, and rural prosperity; and the dissemination of this information to policy makers, farmers, and others interested in agricultural prosperity for small and medium sized farms.

Other Key Information

- Integrated project proposals must include research, education, and extension/outreach objectives (at least two of three). In general, strong integrated projects will be stakeholder driven, issue focused, and outcome based. They will exhibit a collaborative team approach, will contain strong plans for project management and project evaluation, and will produce sustained education/extension initiatives. Please see Part V, B for the criteria that will be used to evaluate these proposals. Applicants are encouraged to see http://www.csrees.usda.gov/funding/integrated/integrated.html for an example of an integrated proposal and other grant-writing resources.

- The NRI encourages integrated projects that develop content suitable for delivery through eXtension. This content is for "end users" as opposed to staff development and must align with the eXtension Guiding Principles, Implementation Plan and other requirements as presented at http://about.extension.org/university-researcher/. Funds may be used to contribute to an existing Community of Practice or to form a new Community of Practice as appropriate.

- Applications should be interdisciplinary and focused on the economic profitability and the environmental sustainability of small and medium-sized farms.

- If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

PART III—ELIGIBILITY INFORMATION

A. Eligible Applicants

For **research projects**, the eligibility requirements for the NRI are as follows: except where otherwise prohibited by law, State agricultural experiment stations, all colleges and universities, other research institutions and organizations, Federal agencies, national laboratories, private organizations or corporations, and individuals are eligible to apply for and to receive a competitive grant. The Agricultural Research Enhancement Awards (AREA) have some notable differences from these requirements. See Part II C, 2.

For **integrated projects**, the eligibility requirements for the NRI are as follows: except where otherwise prohibited by law, State agricultural experiment stations, all colleges and universities, research foundations maintained by colleges or universities, private research organizations with established and demonstrated capacities to perform research or technology transfer, Federal research agencies, and national laboratories are eligible to apply for and receive a competitive grant. The bridge grants have some notable differences from these requirements. See Part II, C, 3(b) for details.

Unsolicited applications will not be considered and applications from scientists at non-United States organizations will not be accepted. Award recipients may subcontract to organizations not eligible to apply provided such organizations are necessary for the conduct of the project.

B. Request for Determination

If an applicant's institution can be considered a minority-serving institution and wishes to be considered for a bridge grant (as described in Part II, C, 3(b), but does not work with one or more of the minority groups criteria specified in the Definitions section of this RFA (see Part VIII, H), the applicant must submit to CSREES documentation

supporting the request. This documentation must be submitted as part of the requestor's application package and must be received by CSREES by the applicable program deadline. The Secretary or designated individual will determine whether the group or groups identified are eligible under this Program.

The Request for Determination may be submitted as a PDF attachment in Field 11 in the Other Attachments portion of the R&R Other Project Information Form. In addition, the following information must be provided in the order specified below:

(a) A description of each minority group that is being submitted for determination;

(b) Data or studies supporting this group's designation as a minority group; and

(c) Data indicating that enrollment of the minority group(s) exceeds 50 percent of the total enrollment at the academic institution, including graduate and undergraduate and full- and part-time students.

C. Cost Sharing or Matching
For research projects, unless otherwise indicated, cost sharing or matching is not required for NRI awards. See Part II, C, 2, (c), (ii) for matching requirements for equipment grants.

For integrated projects, if a grant is for applied research that is commodity-specific and not of national scope, the grant recipient is required to match the USDA funds awarded on a dollar-for-dollar basis from non-Federal sources with cash and/or in-kind contributions.

PART IV—APPLICATION AND SUBMISSION INFORMATION

A. Address to Request Application Package
Only electronic applications may be submitted to CSREES via Grants.gov in response to this RFA.

Electronic Application Package
Those who wish to submit an application to the NRI should first contact their Authorized Organizational Representative (AOR) to determine if the organization is prepared to submit applications through Grants.gov. See http://www.grants.gov/GetStarted for steps for preparing to submit applications through Grants.gov.

The NRI application package is accessible through the NRI Funding Opportunity page at http://www.csrees.usda.gov/fo/nri. Select the live link associated with "Funding Opportunity Number" in the reference chart at the bottom of the page.

To access the electronic application package via Grants.gov, go to http://www.grants.gov, click on the "Apply for Grants" heading on the left-hand side of page, click on "Step 1: Download a Grant Application Package and Instructions," enter the CFDA number 10.206 and click "Download Package." From the search results, select "download" to access the instructions and application.

Contained within the electronic application package is the "CSREES Grants.gov Application Guide: A Guide for Preparation and Submission of CSREES Applications via Grants.gov." This Guide contains an introduction and general Grants.gov instructions, information about how to use a Grant Application Package in Grants.gov, and instructions on how to complete the application forms. If electronic assistance is needed, refer to Part III sections 7.1 and 7.2 for contact information.

Technical questions pertaining to the electronic submission process, including registration through Grants.gov, the PureEdge Viewer software required to download, complete, and submit electronic applications, or problems related to the Grants.gov website should be directed to Grants.gov staff. They can be reached by phone at 1-800-518-GRANTS or via email at support@grants.gov.

Online resources to help potential applicants with the new electronic application package and submission requirements are available at http://www.grants.gov. Additional online resources are provided by CSREES to help

applicants, including tips for preparing an electronic application and electronic submission frequently asked questions at http://www.csrees.usda.gov/funding/electronic.

B. Content and Form of Application Submission

Electronic applications should be prepared according to the document entitled "CSREES Grants.gov Application Guide: A Guide for Preparation and Submission of CSREES Applications via Grants.gov." This guide is part of the corresponding electronic application package (see Section A. of this Part). The following is **additional information** needed in order to prepare an application in response to this RFA. If there is discrepancy between the two documents, the information contained in this RFA is overriding.

1. Integrated and Standard Research Grant Applications

a. General

Use the CSREES Grants.gov Application Guide and the following guidelines to prepare an application. Proper preparation of application will assist reviewers in evaluating the merits of each application in a systematic, consistent fashion:

(1) Attachment Format

CSREES will only accept attachments in the portable document format (PDF). See Part III of the CSREES Grants.gov Application Guide. PDF generating software can be obtained from the Grants.gov Customer Resources Web page (http://grants.gov/resources/download_software.jsp#pdf_conversion_programs). **SUBMITTED PROPOSALS THAT DO NOT MEET THESE REQUIREMENTS FOR PDF ATTACHMENTS WILL BE RETURNED WITHOUT REVIEW. Submitted PDF documents must have one-inch margins and typed or word processed using no type smaller than 12 point regardless of line spacing. Number each page of the attachment sequentially. Please note any page limitations indicated for a given attachment in this RFA. Title each attachment in the document header and save each file with name listed below for each attachment.**

(2) Grant Application Package

(a) "Competition ID" may not be auto-populated as the CSREES Grants.gov Application Guide indicates. Please leave this field blank.

(b) Required field "Application Filing Name" is for applicant and/or institutional use. There are no specific guidelines for this field. However, it must be completed and the applicant may enter a name or number they deem appropriate.

(3) In the process of submitting your proposal electronically, you will complete seven components of the SF 424 Research and Related (R&R) Application Package:

(a) SF 424 R&R Cover Sheet
(b) R&R Other Project Information
(c) R&R Senior/Key Person Profile
(d) R&R Personal Data
(e) R&R Budget
(f) Supplemental Information Form
(g) NRI Proposal Type Form

All forms must be submitted through Grants.gov.

b. SF 424 R&R Cover Sheet

Information related to the questions on this form is dealt with in detail in Part V, 2. of the CSREES Grants.gov Application Guide.

(1) Field 5. Legal Name – Enter the legal name of the organization to which the award should be made.

(2) Person to be contacted on matters involving this application – Enter the information for the contact person related to this application preferred by the institution. It is anticipated that the NRI official program correspondence will be maintained with the AOR or PD depending if the topic is administrative or scientific.

(3) Field 11. Descriptive Title of Applicant's Project – The title should be a brief (**140-character-maximum including spaces**), clear, and specific designation of the proposed integrated or research project.

(4) Field 13. Proposed Project – Please select the start date of the project at least six months after the submission due date for the program. Choose the end date to correspond to the correct duration of the project.

(5) Field 20. Pre-application – Do not fill out this portion of the form. The NRI is not accepting pre-applications in Fiscal Year 2007 in any of the programs. Some programs may be requiring a Letter of Intent. See program descriptions for more details.

c. <u>R&R Other Project Information</u>

Information related to the questions on this form is dealt with in detail in Part V, 3. of the CSREES Grants.gov Application Guide.

(1) Field 4a. Does this project have an actual or potential impact on the environment? – The majority of proposals submitted to the NRI can be considered to have an actual or potential impact on the environment. However, most proposed activity will fall into one of the following Department of Agriculture or CSREES categorical exclusions listed in the table below. Thus, it is anticipated that the majority of applicants submitting to the NRI will check "Yes" in response to the question in Field 4a.

Under 7 CFR Part 3407 (CSREES' implementing regulation of the National Environmental Policy Act of 1969 (NEPA)), environmental data or documentation is required in order to assist CSREES in carrying out its responsibilities under NEPA, which includes determining whether the proposed activity requires the preparation of an environmental assessment or an environmental impact statement, or whether such activity can be excluded from this requirement on the basis on several categories.

(2) Field 4b. If yes, please explain – Type "See Field 4d below."

(3) Field 4c. If this project has actual or potential impact on the environment, has an exemption been authorized or an environmental assessment (EA) or environmental impact statement (EIS) been performed? – Check "Yes" if a categorical exclusion listed in the table below applies or if an EA or EIS has been performed. Attach a copy of the EA or EIS in Field 11. Other Attachments. Check "No" if the proposed activity does <u>not</u> fall into one of the categorical exclusions listed in the table below or if and EA or EIS has <u>not</u> been performed (may require completion of an EA or EIS). If "No" is checked, attach an explanation of the potential environmental impacts of the proposed activity in Field 11. Other Attachments.

It is necessary for the applicant to advise CSREES whether the proposed activity falls into one of the following Department of Agriculture or CSREES categorical exclusions, or whether the activity does not fall into one of these exclusions (in which case the preparation of an environmental assessment or an environmental impact statement may be required).

(4) Field 4d. Use the table below to determine the exclusion of impact on the environment. Enter Exclusion Code in Field 4d. if a file is attached in "Field 11. Other Attachments," in response to Field 4c., enter "Please see attached."

USDA CSREES NEPA Exclusion Codes Table

Exclusion Code	Description
Department of Agriculture Categorical Exclusions (found at 7 CFR 1b.3 and restated at 7 CFR 3407.6(a)(1)(i) through (iv))	
(a)(1)(i)	Policy development, planning, and implementation which are related to routine activities such as personnel, organizational changes, or similar administrative functions
(a)(1)(ii)	Activities that deal solely with the functions of programs, such as program budget proposals, disbursement, and transfer or reprogramming of funds
(a)(1)(iii)	Inventories, research activities, and studies such as resource inventories and routine data collection when such actions are clearly limited in context and intensity
(a)(1)(iv)	Educational and informational programs and activities
(a)(1)(v)	Civil and criminal law enforcement and investigative activities
(a)(1)(vi)	Activities that are advisory and consultative to other agencies and public and private entities, such as legal counseling and representation
(a)(1)(vii)	Activities related to trade representation and market development activities abroad
CSREES Categorical Exclusions (found at 7 CFR 3407.6(a)(2)(i) through (ii))	
The following categories of research programs or projects of limited size and magnitude or with only short-term effects on the environment:	
(a)(2)(i)(A)	Research conducted within any laboratory, greenhouse, or other contained facility where research practices and safeguards prevent environmental impacts
(a)(2)(i)(B)	Surveys, inventories, and similar studies that have limited context and minimal intensity in terms of changes in the environment
(a)(2)(i)(C)	Testing outside the laboratory, such as in small isolated field plots, which involves the routine use of familiar chemicals or biological materials
(a)(2)(ii)	Routine renovation, rehabilitation, or revitalization of physical facilities, including the acquisition and installation of equipment, where such activity is limited in scope and intensity

(5) Field 6. Project Summary/Abstract – **PDF Attachment**. The Project Summary is limited to **250 words**. Title the attachment as 'Project Summary' in the document header and save file as 'Project Summary'.

The PD(s) should also indicate in the Project Summary which of the five CSREES goals (Part II, D.) the proposed project addresses. The importance of a concise, informative Project Summary cannot be overemphasized. If submitting an integrated project, please state this in the first sentence of the Project Summary.

(6) Field 7. Project Narrative (formerly Project Description) – **PDF Attachment.** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

PLEASE NOTE: For Research Career Enhancement Awards (Sabbatical Awards), Equipment Grants, and Seed Grants, the Project Narrative section may not exceed a total of 7 single- or double-spaced pages, including figures and tables. For all other types of applications, the Project Narrative section may not exceed a total of 18 single- or double-spaced pages, including figures and tables. These page limitations apply regardless of whether figures or tables are included. All pages, including those with figures and tables, should be numbered sequentially. Applications exceeding the applicable page limitation may be returned without review. These maximums have been established to ensure fair and equitable competition.

Project Narrative must include all of the following:

(a) Introduction. A clear statement of the long-term goal(s) and supporting objectives or research questions of the proposed project should be included. Summarize the body of knowledge or other past

activities that substantiate the need for the proposed project. Describe ongoing or recently completed significant activities related to the proposed project including the work of key project personnel. Preliminary data/information pertinent to the proposed research should be included in this section. All works cited should be referenced (see (7), Bibliography & Reference Cited, below).

(b) Progress Report. If the application is a renewal of an existing project supported under this program (or its predecessor), include a clearly marked progress report describing results to date from the previous award. In addition, the progress report must be contained within the 18-page limit and should contain the following information:

- A comparison of actual accomplishments with the objectives established for the previous award;
- The reasons established objectives were not met, if applicable; and
- A listing of any publications resulting from the award.

Copies of no more than 2 preprints or reprints may be appended to the application (see (10)(e) Field 11. Other Attachments, Appendices to Project Narrative of this section). Appendices are not counted toward the 18-page Project Narrative limit.

(c) Rationale and Significance. Concisely present the rationale behind the proposed research, extension, or education. The specific relationship of the project's objectives to one or more of the particular program priorities and the potential long-range improvement in and sustainability of U.S. agriculture and food systems should be shown clearly. These purposes are described under Part I, B., Purpose and Priorities. Any novel ideas or contributions that the proposed project offers should also be discussed in this section.

(d) Approach. The activities proposed or problems being addressed must be clearly stated and the approaches being applied clearly described. Specifically, this section must include:

- A description of the activities proposed and the sequence in which the activities are to be performed;
- Methods to be used in carrying out the proposed project, including the feasibility of the methods;
- Expected outcomes;
- Means by which results will be analyzed, assessed, or interpreted;
- How results or products will be used;
- Pitfalls that may be encountered;
- Limitations to proposed procedures; and
- A full explanation of any materials, procedures, situations, or activities related to the project that may be hazardous to personnel, along with an outline or precautions to be exercised to avoid or mitigate the effects of such hazards.

(7) Field 8. Bibliography & References Cited – **PDF Attachment**. **No Page Limit.** Title the attachment as 'Bibliography & References Cited' in the document header and save file as 'Bibliography & References Cited'.

All work cited, including that of key personnel, should be referenced in this section of the application. All references to works cited should be complete, including titles and all co-authors, and should conform to an acceptable journal format. Reference should be listed in alphabetical order using the last name of the first author. (See the example provided Part III, 3.8. of the CSREES Grants.gov Application Guide.) References are not considered in the page-limitation for the Project Narrative.

(8) Field 9. Facilities & Other Resources – **PDF Attachment. No Page Limit.** Title the attachment as 'Facilities & Other Resources' in the document header and save file as 'Facilities & Other Resources'.

(9) Field 10. Equipment **– PDF Attachment**. **No Page Limit.** Title the attachment as 'Equipment' in the document header and save file as 'Equipment'.

In addition to describing available equipment, items of nonexpendable equipment necessary to conduct and successfully complete the proposed project should be listed in Field C. of the R&R Budget and described in the Budget Justification (Field K of the R&R Budget).

(10) Field 11. Other Attachments

(a) Response to Previous Review – **PDF Attachment**. **1 Page Limit.** Title the attachment as 'Response to Previous Review' in the document header and save file as 'Response to Previous Review'.

This requirement only applies to "Resubmitted Applications" and "Resubmitted Renewal Applications" as described in Part II. B., Types of Applications. PDs must respond to the previous review panel summary on **no more than one page**, titled "RESPONSE TO PREVIOUS REVIEW." If desired, additional comments may be included in the text of the Project Narrative, subject to the page limitations of that section.

b) Key Personnel & Management Plan – **PDF Attachment 5 Page Limit.** Title the attachment as 'Key Personnel & Management Plan' in the document header and save file as 'Key Personnel & Management Plan'.

Key Personnel. **2 Page Limit**. Clearly describe the roles and responsibilities of the PD, co-PD(s), and/or collaborator(s). Biographical sketches for key personnel should be attached in the R&R Senior/Key Person Profile.

Management Plan – **For Integrated Projects Only, 3 Page Limit.** Clearly articulate the management plan for the project. Include a coordination strategy to enhance communication, data sharing, and reporting among members of the project team, as well as a time line for project implementation and delivery of project products.

(c) Collaborative Arrangements – **PDF Attachment**. **No Page Limit.** Title the attachment as 'Collaborative Arrangements' in the document header and save file as 'Collaborative Arrangements'.

If it will be necessary to enter into formal consulting or collaborative arrangements with others, such arrangements should be fully explained and justified. If the consultant(s) or collaborator(s) are known at the time of application, a vitae or resume should be provided in the R&R Senior/Key Person Profile. In addition, evidence (e.g., letter of support) should be provided that the collaborators involved have agreed to render these services. The applicant also will be required to provide additional information on consultants and collaborators in the budget portion of the application.

(d) Results from Prior NRI Support – **PDF Attachment**. **1 Page Limit per award.** Title the attachment as 'Results from Prior NRI Support' in the document header and save file as 'Results from Prior NRI Support'.

If the PD or a co-PD has received NRI support in the past 5 years, information on results from that prior funding is required. This information will be used in the review of the application. For renewal applications, provision of the Progress Report (see Project Narrative) is sufficient and information need not be repeated in this section. For each award, list the CSREES award number, the amount and period of support, the title of the project, a summary of the results of the completed work, the long-term effects of these results, and the publications resulting from the NRI award.

(e) Appendices to Project Narrative – **PDF Attachment.** Title the attachment as 'Appendices' in the document header and save file as 'Appendices'.

Each Project Narrative is expected to be complete; however, additions to the Project Narrative (appendices) are allowed if they are directly germane to the proposed research and are strictly limited to a **maximum of 2** of the following items in any combination:

- Reprints (papers that have been published in peer-reviewed journals); and
- Preprints (only manuscripts in press for a peer-reviewed journal will be accepted and must be accompanied by letters of acceptance from the publishing journals).

  Preprints attached in support of the application should be single-spaced and printed on both sides of the page. Each preprint must be identified with the name of the submitting organization, the name(s) of the PD(s), and the title of the application. Information may not be appended to an application to circumvent page limitations prescribed for the Project Narrative. Extraneous materials will not be used during the peer review process.

d. R&R Senior/Key Person Profile

Information related to the questions on this form is dealt with in detail in Part V, 4. of the CSREES Grants.gov Application Guide. A Senior/Key Person Profile should be completed for the PD and each co-PD, senior associate, and other professional personnel.

(1) Attach Biographical Sketch Field – **PDF Attachment. 2 Page Limit (excluding publications listings) per PD, co-PD, senior associate, and other professional personnel.** Title the attachment as 'Biographical Sketch' in the document header and save file as 'Biographical Sketch'.

A biographical sketch (vitae) of the PD and each co-PD, senior associate, and other professional personnel should be included.

(2) Attach Current and Pending Support Field – **PDF Attachment. No Page Limit.** Title the attachment as 'Current and Pending Support' in the document header and save file as 'Current and Pending Support'.

All applications must contain a current and pending support list containing other current public or private support (including in-house support) to which personnel identified in the application have committed portions of their time, whether or not salary support for person(s) involved is included in the budget. Current and pending support information is now required only for personnel with PD or co-PD(s) indicated as Project Role on the R&R Senior/Key Person Profile. Please note that the project being proposed should be included in the pending section of the form. Total project time listed for each PD should not exceed 100% for concurrent projects.

e. R&R Personal Data

Information related to the questions on this form is dealt with in detail in Part V, 5. of the CSREES Grants.gov Application Guide.

f. R&R Budget

Information related to the questions on this form is dealt with in detail in Part V, 6. of the CSREES Grants.gov Application Guide.

(1) Field H. Indirect Costs – See Section D., Funding Restrictions, of this Part for indirect cost information.

(2) Field K. Budget Justification – **PDF Attachment. No Page Limit.** Title the attachment as 'Budget Justification' in the document header and save file as 'Budget Justification'.

All budget categories, with the exception of Indirect Costs, for which support is requested, must be individually listed (with costs) in the same order as the budget. If consulting, collaborative, or subcontractual arrangements are included in the application, these arrangements should be fully explained and justified. The rate of pay for any consultant must be included, if known at the time of application. Please include a cost breakdown for the consultant. Letters of consent or collaboration or other evidence should be provided to show that collaborators have agreed to participate. A proposed statement of work, vitae, and a budget for each arrangement involving the transfer of substantive programmatic work or the provision of financial assistance to a third party must be supplies. In multi-institutional applications, a budget and budget narrative must be included for each institution involved. The lead institution and each participating institution must be identified.

(3) Matching

For those equipment grants that require matching, a letter signed by the institution's authorized organizational representative stating that the necessary non-Federal matching funds will be made available from an institution or other source is required. If the institution is eligible for the waiver of these matching funds, the budget justification must include a letter signed by the institution's authorized organizational representative so stating (See Table 2 for eligibility).

For integrated projects, if an applicant concludes that matching funds are not required (as specified under Part III, C.), a justification should be included in the Budget Narrative. CSREES will consider this justification when ascertaining final matching requirements. CSREES retains the right to make final determinations regarding matching requirements.

For those integrated projects where matching funds are required (as specified under Part III, C.), applications should include written verification of commitments of matching support (including both cash and in-kind contributions) from third parties (non-federal sources). Written verification means:

> For any third party cash contributions, a separate pledge agreement for each donation, signed by the authorized organizational representative of the donor organization and the applicant organization, which must include: (1) the name, address, and telephone number of the donor; (2) the name of the applicant organization; (3) the title of the project for which the donation is made; (4) the dollar amount of the cash donation; and (5) a statement that the donor will pay the cash contribution during the grant period.

The sources and the amount of all matching support from outside the applicant organization should be summarized on a separate page and placed in the application immediately following the Budget Narrative. All pledge agreements must be placed in the application immediately following the summary of matching support.

The value of applicant contributions to the project shall be established in accordance with the applicable cost principles. Applicants should refer to OMB Circulars A-21, Cost Principles for Educational Institutions, A-87, Cost Principles for State, Local, and Tribal Governments, A-122, Cost Principles for Non-Profit Organizations, and the cost principles in the Federal Acquisition Regulation at 48 CFR 31.2 for further guidance and other requirements relating to matching and allowable costs.

g. <u>Supplemental Information Form</u>

Information related to the questions on this form is dealt with in detail in Part VI, 1. of the CSREES Grants.gov Application Guide.

(1) Field 1. Funding Opportunity –Field 1 is pre-populated and "National Research Initiative Competitive Grants Program" appears under Funding Opportunity Name and "USDA-GRANTS-NRI-000141" for Funding Opportunity Number.

(2) Field 2. Program to which you are applying – A proposal can only be submitted to one program. It is extremely important that the Program Code Name and Program Code are spelled correctly and match this RFA. If you have a question about which topic area is appropriate for your proposal, please contact the National Program Leader for that program. Use the following chart to determine the Program Code Name and Program Code to which you are applying:

Program Code Name	Program Code
Plant Biosecurity	20.2
Managed Ecosystems	23.1
Soil Processes	25.0
Water and Watersheds	26.0
Global Change Initiatives	27.0
Air Quality	28.0
Bioactive Food Components for Optimal Health	31.0
Human Nutrition and Obesity	31.5
Food Safety	32.0
Epidemiological Approaches for Food Safety	32.1
Animal Reproduction	41.0
Animal Growth and Nutrient Utilization	42.0
Animal Genome (A): Applied Animal Genomics	43.0
Animal Genome (B): Tools and Resources	43.0
Animal Genome (C): Bioinformatics	43.0
Animal Protection and Biosecurity (A): Animal Disease	44.0
Animal Protection and Biosecurity (B): Animal Well-Being	44.0
Animal Protection and Biosecurity (C): Animal Biosecurity Coordinated Agricultural Projects (CAP)	44.0
Microbial Genomics (A): Genome Sequencing	51.0
Microbial Genomics (B): Functional Genomics of Microorganisms	51.0
Arthropod and Nematode Biology and Management (A): Organismal and Population Biology	51.2

Program Code Name	Program Code
Arthropod and Nematode Biology and Management (B): Suborganismal Biology	51.2
Arthropod and Nematode Biology and Management (C): Tools, Resources, and Genomics	51.2
Microbial Biology (A): Microbial Observatories	51.8
Microbial Biology (B): Biology of Plant-Microbe Associations	51.8
Biology of Weedy and Invasive Species in Agroecosystems	51.9
Plant Genome (A): Tools, Resources, and Bioinformatics	52.1
Plant Genome (B): Functional Genomics	52.1
Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP)	52.1
Plant Biology (A): Gene Expression and Genetic Diversity	56.0
Plant Biology (B): Environmental Stress	56.0
Plant Biology (C): Biochemistry	56.0
Plant Biology (D): Growth and Development	56.0
Agricultural Markets and Trade	61.0
Agricultural Prosperity for Small and Medium-Sized Farms	66.0
Improving Food Quality and Value	71.1
Biobased Products and Bioenergy Production Research	71.2

(3) Field 8. Conflict of Interest List – **PDF Attachment. No Page Limit.** Title the attachment as 'Conflict of Interest' in the document header and save file as 'Conflict of Interest'.

A Conflict of Interest List must be provided for all individuals who have submitted a Biographical Sketch in response to item (d)(1) of this section.

h. NRI Proposal Type Form

Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

(1) Field 1. Proposal Type – For Integrated Grant Applications, select "Integrated Project Proposal." For Standard Research Grant Applications, select "Research Project Proposal" and "Standard Research Project."

i. Application Modification Form - DO NOT USE
This form may not be used with an application to the NRI. If changes or additions need to be made to a submitted application, please contact the National Program Leader responsible for the topic area to which you submitted your original application for instructions.

2. Research Conference Applications
Submit applications requesting support for conferences to appropriate programs, described in Part II, E., by applicable deadlines. **Potential applicants are strongly advised to consult the appropriate National Program Leader before preparing their conference application.** To submit a Research Conference application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1., above), noting the following differences:

a. R&R Other Project Information Form

(1) Field 6. Project Summary/Abstract – **PDF Attachment.** Title the attachment as 'Project Summary' in the document header and save file as 'Project Summary'.
State the objectives of the conference, symposium, or workshop, as well as the proposed location and probable inclusive date(s) of the conference.

(2) Field 7. Project Narrative (formerly Project Description) – **PDF Attachment.** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

Describe the conference proposed, including:
(a) A justification for the meeting;
(b) Recent meetings on the same subject with dates and locations;
(c) Names and organizational affiliations of the chair and other members of the organizing committee;
(d) A proposed program (or agenda) for the conference, including a listing of scheduled participants and their institutional affiliations; and
(e) The method of announcement or invitation that will be used.

b. R&R Senior/Key Person Profile

(1) Attach Biographical Sketch Field – **PDF Attachment. 2 Page limit (including publications listings) per submitting PD(s).** Title the attachment as 'Biographical Sketch' in the document header and save file as 'Biographical Sketch'.

Include a Biographical Sketch for submitting PD(s) with a brief listing of relevant publications.

c. R&R Budget

The budget for the conference may include an appropriate amount for transportation and subsistence costs for participants and for other conference-related costs. Conference awards are not expected to exceed $10,000 and are not renewable. Conference awards may not include indirect costs. Include an itemized breakdown of all support requested from the NRI in the Budget Justification (Field K. of the R&R Budget).

d. Supplemental Information Form

(1) Field 8. Conflict of Interest List – **PDF Attachment.** Title the attachment as 'Conflict of Interest' in the document header and save file as 'Conflict of Interest'.
Include for submitting PD(s).

e. NRI Proposal Type Form
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

(1) Field 1. Proposal Type – For Research Conference Applications, select "Research Project Proposal" and "Conference."

3. Agricultural Research Enhancement Award (AREA) Applications

a. Postdoctoral Fellowships

See Part II, C., 2(a) and Part III, A. for eligibility requirements. Submit applications requesting support for postdoctoral fellowships to appropriate research programs, described in Part II, E., by applicable deadlines. An individual may submit an application directly or through the mentor's institution. Postdoctoral applicants must be the sole PD listed on the application. To submit a Postdoctoral Fellowship application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1., above), noting the following differences:

(1) SF 424 R&R Cover Sheet

If the application is submitted through an institution, the SF 424 R&R Cover Sheet must be endorsed by the AOR who possesses the necessary authority to commit the applicant's time and other relevant resources. If an application is to be submitted by an individual, the submitting individual must be the proposing postdoctoral applicant.

(2) R&R Other Project Information

(a) Field 1 and 2. Are Human Subjects Involved? and Are Vertebrate Animals Used? – Postdoctoral fellowship applicants whose research requires use of human subjects or vertebrate animals must have their project reviewed by the appropriate committee(s) at the institution where the research will be conducted.

(b) Field 9. Facilities & Other Resources – **PDF Attachment.** Title the attachment as 'Facilities & Other Resources' in the document header and save file as 'Facilities & Other Resources'.
Provide documentation that arrangements have been made for the necessary facilities & other resources for conduct of the research.

(c) Field 10. Equipment **– PDF Attachment.** Title the attachment as 'Equipment' in the document header and save file as 'Equipment'.
Provide documentation that arrangements have been made for the necessary equipment for conduct of the research.

(d) Field 11. Other Attachments, Collaborative Arrangements – **PDF Attachment.** Title the attachment as 'Collaborative Arrangements' in the document header and save file as 'Collaborative Arrangements'.

Provide documentation that arrangements have been made with an established investigator to serve as mentor. *The letter must provide assurance that the proposed project initiates the postdoctoral student's independent research program. Although the project may fit in the context of the mentor's existing research area, it should not simply be an extension of ongoing projects in the mentor's laboratory.* Also provide documentation from the host institution's AOR indicating that the host institution concurs with the proposed arrangements. Postdoctoral applicants from Federal laboratories must notify the appropriate regional office.

(3) R&R Senior/Key Person Profile

A Senior/Key Person Profile must be completed for the Postdoctoral Fellowship applicant and their corresponding scientific mentor(s).

(a) Project Role Field – Select "Post Doctoral" for the Postdoctoral Fellowship applicant. Select "Other (Specify)" for the corresponding scientific mentor(s).

(b) Other Project Role Category Field – Enter "Mentor" for corresponding scientific mentor(s).

(c) Attach Current and Pending Support Field – **PDF Attachment.** Title the attachment as 'Current and Pending Support' in the document header and save file as 'Current and Pending Support'.

Current and pending support for both the postdoctoral applicant and the scientific mentor(s) (as documentation of on-going work in the mentor's laboratory) must be completed.

(4) R&R Budget
The budget is limited to $125,000 and to 2 year duration. Funds should be requested primarily for salary support although other expenditures (e.g., supplies, travel, and publication costs) are allowable costs if properly justified. An institutional allowance not exceeding $2,400 per year is allowed. Indirect costs are not allowed. The institutional allowance should be included in Field F., Other Direct Costs, Line 8. of the R&R Budget.

(5) Supplemental Information Form

(a) Field 8. Conflict of Interest List – **PDF Attachment.** Title the attachment as 'Conflict of Interest' in the document header and save file as 'Conflict of Interest'.

Conflict of Interest list for both the postdoctoral applicant and the scientific mentor(s) must be completed.

(6) NRI Proposal Type Form
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

(a) Field 1. Proposal Type – For Postdoctoral Fellowship Applications, select "Research Project Proposal," "Agricultural Research Enhancement Award (AREA)," and "Postdoctoral Fellowship."

b. New Investigator Awards
See Part II, C., 2(b) and Part III, A. for eligibility requirements. New investigators should submit research applications to appropriate research programs, described in Part II, E., by applicable deadlines. To submit a New Investigator Award application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1., above).

(1) NRI Proposal Type Form
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

(a) Field 1. Proposal Type – For Postdoctoral Fellowship Applications, select "Research Project Proposal," "Agricultural Research Enhancement Award (AREA)," and "New Investigator."

c. Strengthening Awards

(1) Research Career Enhancement Awards (Sabbatical Awards). See Research Career Enhancement Awards (Sabbatical Awards) in Part II, C., 2(c) and Part III, A. for eligibility requirements. Applications from eligible faculty wishing to enhance their research capabilities through sabbatical leaves are encouraged. Applications should be submitted to appropriate research programs, described in Part II, E., by applicable deadlines. Applications should originate through the applicant's home institution. To submit a Research Career Enhancement Awards (Sabbatical Awards) application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1., above) noting the following differences:

(a) R&R Other Project Information Form
- Field 1 and 2. Are Human Subjects Involved? and Are Vertebrate Animals Used? – Applicants whose research requires use of human subjects or vertebrate animals must have

their project reviewed by the appropriate committee(s) at the institution where the research will be conducted.

- Field 6. Project Summary/Abstract – **PDF Attachment.** Title the attachment as 'Project Summary' in the document header and save file as 'Project Summary'.

  Indicate overall project goals and supporting objectives.

- Field 7. Project Narrative – **PDF Attachment**. **7 Page Limit.** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

  Describe the proposed sabbatical, including:
  - A general description of the research interests and goals of the applicant in order to provide perspective for the application;
  - A description of the research project to be pursued while on the sabbatical leave;
  - A statement of how the proposed activities will enhance the scientific research capabilities of the applicant; and
  - A statement of future research goals and objectives once the sabbatical is complete and how the sabbatical will enable the applicant to pursue these goals.

- Field. 11. Other Attachments, Collaborative Arrangements – **PDF Attachment.** Title the attachment as 'Collaborative Arrangements' in the document header and save file as 'Collaborative Arrangements'.

  Provide documentation that arrangements have been made with an established investigator(s) to serve as host, including:
  - A letter from the home institution detailing the particular arrangements at the home institution with respect to salary and date and duration of sabbatical;
  - A letter from the scientific host(s) indicating willingness to serve in this capacity, and a description of the host's contribution to the proposed activities both scientifically and with regard to use of facilities and equipment; and
  - A statement signed by the Department Head or equivalent official at the host institution indicating a commitment to provide research space and facilities for the period of the applicant's presence.

(b) R&R Senior/Key Person Profile
A Senior/Key Person Profile must be completed for the Research Career Enhancement Awards (Sabbatical Awards) applicant and their corresponding scientific host(s) and any other personnel whose qualifications merit consideration in the evaluation of the application.

- Project Role Field – Select "PD/PI" for the Research Career Enhancement Awards (Sabbatical Awards) applicant. Select "Other" for the corresponding scientific host(s) and any other personnel whose qualification merit consideration in the evaluation of the application.

- Attach Biographical Sketch Field – **PDF Attachment.** Title the attachment as 'Biographical Sketch' in the document header and save file as 'Biographical Sketch'.

  A Biographical Sketch for both the Research Career Enhancement Awards (Sabbatical Awards) applicant and the scientific host(s) and any other personnel whose qualifications merit consideration in the evaluation of the application must be submitted.

- Attach Current and Pending Support Field – **PDF Attachment.** Title the attachment as 'Current and Pending Support' in the document header and save file as 'Current and Pending Support'.

Current and pending support for both the Research Career Enhancement Awards (Sabbatical Awards) applicant and the scientific host(s) (as documentation of on-going work in the mentor's laboratory) must be completed.

(c) R&R Budget

Limit to one year's salary and funds for travel and supplies.

(d) Supplemental Information Form

- Field 8. Conflict of Interest List – **PDF Attachment.** Title the attachment as 'Conflict of Interest' in the document header and save file as 'Conflict of Interest'.

  Conflict of Interest list for both the Research Career Enhancement Awards (Sabbatical Awards) applicant and the scientific host(s) and any other personnel whose qualifications merit consideration in the evaluation of the application must be completed.

(e) NRI Proposal Type Form

Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

- Field 1. Proposal Type – For Research Career Enhancement Award (Sabbatical Awards) Applications, select "Research Project Proposal," "Agricultural Research Enhancement Award (AREA)," "Strengthening," and "Career Enhancement."

(2) Equipment Grants. See Equipment Grants, in Part II, C., 2(c) and Part III, A. for eligibility requirements. Applications requesting assistance in purchasing equipment must be submitted as Equipment Grant applications. Applications should be submitted to appropriate research programs, described in Part II, E., by applicable deadlines. To submit an Equipment Grant application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1., above), noting the following differences:

(a) R&R Other Project Information Form

- Field 6. Project Summary/Abstract – **PDF Attachment.** Title the attachment as 'Project Summary' in the document header and save file as 'Project Summary'.

  Indicate equipment sought and overall project goals for its use.

- Field 7. Project Narrative – **PDF Attachment**. **7 Page Limit.** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

  Include general description of the research project(s) for which the equipment will be used, how the equipment will fit into or enhance the research program, and how the equipment will allow the applicant to become competitive for future funding or move into new research areas. Also include a brief description of other similar or complementary equipment available to the PD at the institution and why the requested equipment is necessary.

(b) R&R Senior/Key Person Profile

A Senior/Key Person Profile must be completed for the Equipment Grant applicant and other major users of the equipment.

- Project Role Field – Select "PD/PI" for the Equipment Grant applicant. Select "Faculty" for the other major users of the equipment.

- Attach Biographical Sketch Field – **PDF Attachment.** Title the attachment as 'Biographical Sketch' in the document header and save file as 'Biographical Sketch'.

A Biographical Sketch for both the Equipment Grant applicant and other major users of the equipment must be submitted.

- Attach Current and Pending Support Field – **PDF Attachment.** Title the attachment as 'Current and Pending Support' in the document header and save file as 'Current and Pending Support'.

  Current and Pending Support for both the Equipment Grant applicant and other major users of the equipment must be completed. If the applicant has significant funding from other sources, a justification must be provided in the Project Narrative for how this equipment will strengthen the applicant's research program or institution.

(c) R&R Budget
See Post-doctoral, conference, and equipment grant restrictions on indirect cost recovery when applicable.

- Field K. Budget Justification – **PDF Attachment.** Title the attachment as 'Budget Justification' in the document header and save file as 'Budget Justification'.
  The Budget Justification should describe the instrument requested including the manufacturer and model number, if known; provide a detailed budget breakdown of the equipment and accessories required; and indicate the amount of funding requested from USDA for each item of equipment. A letter signed by the institution's AOR stating that the necessary non-Federal matching funds will be made available from an institutional or other source is required. If the institution is eligible for the waiver of these matching funds, a letter signed by the institution's AOR so stating and providing documentation of eligibility (See Table 2 for eligibility) must also be included. A justification must be given for how this equipment will strengthen the applicant's research program or institution.

(d) Supplemental Information Form

- Field 8. Conflict of Interest List – **PDF Attachment.** Title the attachment as 'Conflict of Interest' in the document header and save file as 'Conflict of Interest'.

  Conflict of Interest list for both the Equipment Grant applicant and other major users of the equipment must be completed.

(e) NRI Proposal Type Form
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

- Field 1. Proposal Type – For Equipment Grant Applications, select "Research Project Proposal," "Agricultural Research Enhancement Award (AREA)," "Strengthening," and "Equipment."

(3) Seed Grants. See Seed Grants, in Part II, C., 2(c) and Part III, A. for eligibility requirements. Applications from eligible faculty wishing to collect preliminary data should be submitted as Seed Grant applications. Applications should be submitted to appropriate research programs, described in Part II, E., by applicable deadlines. To submit a Seed Grant application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1., above), noting the following differences:

(a) R&R Other Project Information Form

- Field 7. Project Narrative – **PDF Attachment**. **7 Page Limit.** Title the attachment as 'Project Narrative' in the document header and save file as 'Project Narrative'.

Include all the components of a Standard Research Project application and present enough experimental detail to allow adequate evaluation. In order to be competitive, long-term research goals and a statement describing how this seed grant will allow the applicant to become competitive for future funding should be included.

(b) R&R Budget
See Part II, C., 2(c), Seed Grants, for budget limitations.

(c) NRI Proposal Type Form
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

- Field 1. Proposal Type – For Seed Grant Applications, select "Research Project Proposal," "Agricultural Research Enhancement Award (AREA)," "Strengthening," and "Seed Grant."

(4) Strengthening Standard Research Project Awards. See Strengthening Standard Research Project Awards, in Part II, C, 2(c) for eligibility requirements. Faculty who are eligible for the Strengthening Award Program may wish to apply for a Standard Research Project Award. Applications should be directed to appropriate research programs, described in Part II, E., by applicable deadlines. To submit a Strengthening Standard Research Project Awards application, follow the guidelines for Integrated and Standard Research Grant Applications (Part IV, B., 1., above).

(a) NRI Proposal Type Form
Information related to the questions on this form is dealt with in detail in Part VI, 2. of the CSREES Grants.gov Application Guide.

- Field 1. Proposal Type – For Strengthening Standard Research Project Award Applications, select "Research Project Proposal," "Agricultural Research Enhancement Award (AREA)," "Strengthening," and "Standard Strengthening."

C. Submission Dates and Times
Electronic applications must be submitted by Grants.gov by COB on the dates indicated in the table at the end of this RFA (5:00 p.m., Eastern Time) for the various program areas. Applications received after applicable deadlines will not be considered for funding.

D. Funding Restrictions
The FY 2006 Consolidated Agricultural Appropriations Act (Public Law 108-447) limited indirect costs to 20 percent of the total Federal funds provided under each award. CSREES anticipates that the FY 2007 Agricultural Appropriations Act will include a similar limitation. Therefore, when preparing budgets, applicants should limit their requests for recovery of indirect costs to the lesser of their institution's official negotiated indirect cost rate or the equivalent of 20 percent of total Federal funds awarded. Another method of calculating the maximum allowable is 25 percent of the total direct costs. Please note that if the 2007 Agricultural Appropriations Act contains a different indirect cost limitation CSREES will contact each successful applicant to apply the correct rate prior to the award of a grant.

Funds may not be used for the renovation or refurbishment of research spaces (including energy retrofitting); purchase or installations of fixed equipment in such spaces; or planning, repair, rehabilitation, acquisition, or construction of buildings or facilities.

E. Other Submission Requirements

1. Submission and Receipt of Applications
Applications must be submitted electronically via Grants.gov. The applicant should follow the submission requirements noted in "CSREES Grants.gov Application Guide: A Guide for Preparation and Submission of CSREES Applications via Grants.gov" and the additional information provided in this RFA.

The receipt of all applications will be acknowledged by e-mail. Therefore, applicants are strongly encouraged to provide accurate e-mail addresses, where designated.

If an applicant has not received an acknowledgment within 30 days of the submission, the applicant must contact the Agency contact (see Part VII) immediately and ask for the application number assigned to the application. Failure to do so may result in the application not being considered for funding by the peer review panel. Once the application has been assigned an application number, this number should be cited on all future correspondence.

2. Multiple Submissions
See Part III, 5. of "CSREES Grants.gov Application Guide: A Guide for Preparation and Submission of CSREES Applications via Grants.gov." Duplicate, essentially duplicate, or predominantly overlapping applications submitted to one or more program areas within the NRI (including the programs described under Agricultural Research Enhancement Awards) in any one fiscal year **will be returned without review**. In addition, applicants also may not submit to the NRI an application that is considered duplicate, essentially duplicate, or predominantly overlapping with an application submitted to another CSREES program in the same fiscal year.

PART V—APPLICATION REVIEW REQUIREMENTS

A. General
Each application will be evaluated in a two-part process. First, each application will be screened to ensure that it meets the administrative requirements as set forth in this RFA. **Applications that do not fall within the guidelines as stated in the RFA will be eliminated from program competition and will be returned to the applicant.** Second, a review panel will technically evaluate applications that meet these requirements. In addition to the review panel, written comments will be solicited from *ad hoc* reviewers when necessary. Prior to recommending an application for funding, the peer review panel and *ad hoc* comments will be reviewed and discussed.

Reviewers will be selected based upon their training and experience in relevant scientific, extension, or education fields, taking into account the following factors: (a) the level of relevant formal scientific, technical education, or extension experience of the individual as well as the extent to which an individual is engaged in relevant research, education, or extension activities; (b) the need to include as reviewers experts from various areas of specialization within relevant scientific, education, or extension fields; (c) the need to include as reviewers other experts (e.g. producers, range or forest managers/operators, and consumers) who can assess relevance of the applications to targeted audiences and to program needs; (d) the need to include as reviewers experts from a variety of organizational types (e.g. colleges, universities, industry, state and Federal agencies, private profit, and non-profit organizations) and geographic locations; (e) the need to maintain a balanced composition of reviewers with regard to minority and female representation and an equitable age distribution; and (f) the need to include reviewers who can judge the effective usefulness to producers and the general public of each application.

B. Evaluation Criteria
Projects supported under this program shall be designed, among other things, to accomplish one or more of the purposes of agriculture research, education, and extension, subject to the varying conditions and needs of States. Therefore, in carrying out its review, the peer review panel shall take into account the following factors.

Applications for Research, Including Standard Research, Strengthening Standard Research, Postdoctoral Fellowship, and New Investigator:

1. Scientific Merit of the Application for Research

(a) Novelty, innovation, uniqueness, and originality;

(b) Where model systems are used, ability to transfer knowledge gained from these systems to organisms of importance to U.S. agriculture;

(c) Conceptual adequacy of the research, as applicable;

(d) Clarity and delineation of objectives;

(e) Adequacy of the description of the undertaking and suitability and feasibility of methodology;

(f) Demonstration of feasibility through preliminary data and/or, for postdoctoral fellowships, publication record of the mentor; and

(g) Probability of success of project.

2. Qualifications of Project Personnel, Adequacy of Facilities, and Project Management

(a) Qualifications of applicant (individual or team) to conduct the proposed project, including performance record and potential for future accomplishments (for Postdoctoral Fellowship applications, this applies to the mentor as well as to the postdoctoral applicant);

(b) Demonstrated awareness of previous and alternative approaches to the problem identified in the application;

(c) Institutional experience and competence in subject area; and

(d) Adequacy of available or obtainable support personnel, facilities, and instrumentation.

(e) Planning and administration of the proposed project, including: time allocated for systematic attainment of objectives; and planned administration of the proposed project and its maintenance, partnerships, collaborative efforts, and the planned dissemination of information for multi-institutional projects over the duration of the project.

3. Project Relevance

(a) Documentation that the research is directed toward specific priority areas identified for the program in this RFA. These priorities are designed to yield improvements in and sustainability of U.S. agriculture, the environment, and rural communities.

Applications for a Postdoctoral Fellowship will also be evaluated on the quality of the training environment, including:

(a) Documentation that arrangements have been made with an established investigator to serve as mentor;

(b) Documentation that arrangements have been made for the necessary facilities, space, and materials to conduct the proposed research; and

(c) Potential for the postdoctoral fellow to initiate an independent research program.

For Conference Applications:

1. Relevance of the Proposed Conference to Agriculture and Food Systems in the U.S. and Appropriateness of the Conference in Fostering Scientific Exchange;

2. Qualifications of Organizing Committee and Appropriateness of Invited Speakers to Topic Areas Being Covered;

3. Uniqueness and Timeliness of the Conference; and

4. Appropriateness of Budget Request.

Applications for Research Career Enhancement Awards, Equipment Grants, and Seed Grants:

1. The Merit of the Proposed Activities or Research Equipment as a Means of Enhancing the Research Capabilities and Competitiveness of the Applicant and/or Institution;

2. The Applicant's Previous Research Experience and Background;

3. The Appropriateness of the Proposed Activities or Research Equipment for the Goals Proposed; and

4. Relevance of the Project to Long-Range Improvements in and Sustainability of U.S. Agriculture, the Environment, and Rural Communities.

Applications for Integrated Projects:

These evaluation criteria should be used for the review of all integrated research, education, and extension applications.

1. Merit of the Application for Science Research, Education, and/or Extension

(a) Project objectives and outcomes are clearly described, adequate, and appropriate. All project functions (i.e. research, education, extension; at least two functions are required) are reflected in one or more project objectives;

(b) Proposed approach, procedures, or methodologies are innovative, original, clearly described, suitable, and feasible;

(c) Expected results or outcomes are clearly stated, measurable, and achievable within the allotted time frame;

(d) Proposed research should fill knowledge gaps that are critical to the development of practices and programs to address the stated problem or issue

(e) Proposed extension should lead to measurable behavior change or adoption of technology in an identified audience or stakeholder group.

(f) Proposed education should have an impact upon and advance the quality of food and agricultural sciences by strengthening institutional capacities and curricula to meet clearly delineated needs and train the next generation of scientists and educators.

2. Qualifications of Project Personnel, Adequacy of Facilities, and Project Management

(a) Roles of key personnel are clearly defined;

(b) Key personnel have sufficient expertise to complete the proposed project, and where appropriate, partnerships with other disciplines (e.g. social science or economics) and institutions are established;

(c) Evidence of institutional capacity and competence in the proposed area of work is provided;

(d) Support personnel, facilities, and instrumentation are sufficient;

(e) A clear plan is articulated for project management, including time allocated for attainment of objectives and delivery of products, maintenance of partnerships and collaborations, and a strategy to enhance communication, data sharing, and reporting among members of the project team.

3. Project Relevance

(a) The project addresses a stated program priority. Functions (research, education, and/or extension) are integrated and necessary to address the problem or issue.

(b) The proposed work addresses identified stakeholder needs;

(c) Stakeholders (representatives of target audiences) play an active role in setting project direction, evaluating the relevancy of project outcomes, and assisting in communication with the target audience;

(d) Plan and methods for evaluating success of project activities and documenting potential impact against measurable short and mid-term outcomes are suitable and feasible;

(e) For extension or education activities, curricula and related products will sustain education/extension functions beyond the life of the project;

(f) For extension or education activities, the resulting curricula or products share information and recommendations based on knowledge and conclusions from a broad range of research initiatives.

C. Conflicts of Interest and Confidentiality

During the peer evaluation process, extreme care will be taken to prevent any actual or perceived conflicts of interest that may impact review or evaluation. For the purpose of determining conflicts of interest, the academic and administrative autonomy of an institution shall be determined by reference to the current Higher Education Directory, published by Higher Education Publications, Inc., 6400 Arlington Boulevard, Suite 648, Falls Church, VA 22042. Phone: (703) 532-2300. Web site: http://www.hepinc.com.

Names of submitting institutions and individuals, as well as application content and peer evaluations, will be kept confidential, except to those involved in the review process, to the extent permitted by law. In addition, the identities of peer reviewers will remain confidential throughout the entire review process. Therefore, the names of the reviewers will not be released to applicants.

D. Organizational Management Information

Specific management information relating to an applicant shall be submitted on a one-time basis as part of the responsibility determination prior to the award of a grant identified under this RFA, if such information has not been provided previously under this or another CSREES program. CSREES will provide copies of forms recommended for use in fulfilling these requirements as part of the pre-award process. Although an applicant may be eligible based on its status as one of these entities, there are factors that may exclude an applicant from receiving Federal financial and nonfinancial assistance and benefits under this program (e.g. debarment or suspension of an individual involved or a determination that an applicant is not responsible based on submitted organizational management information).

PART VI—AWARD ADMINISTRATION

A. General

Within the limit of funds available for such purpose, the awarding official of CSREES shall make grants to those responsible, eligible applicants whose applications are judged most meritorious under the procedures set forth in this RFA. Note that the project need not be initiated on the grant effective date, but as soon thereafter as practical so that project goals may be attained within the funded project period. All funds granted by CSREES under this RFA shall be expended solely for the purpose for which the funds are granted in accordance with the approved application and budget, the regulations, the terms and conditions of the award, the applicable Federal cost principles, and the applicable Department's assistance regulations (e.g. parts 3015 and 3019 of 7 CFR). The total period for which a grant is awarded (including all funded and no-cost time extensions) may not exceed 5 years.

B. Award Notice
The award document will provide pertinent instructions and information shall include at a minimum the following:

1. Legal name and address of performing organization or institution to which the Administrator has awarded a grant under the terms of this RFA;

2. Title of project;

3. Name(s) and institution(s) of PDs chosen to direct and control approved activities;

4. Identifying grant number assigned by the Department;

5. Project period, specifying the amount of time the Department intends to support the project without requiring recompetition for funds;

6. Total amount of Departmental financial assistance approved by the Administrator during the project period;

7. Legal authority(ies) under which the grant is awarded;

8. Appropriate Catalog of Federal Domestic Assistance (CFDA) number;

9. Applicable award terms and conditions (see http://www.csrees.usda.gov/business/awards/awardterms.html) to view CSREES award terms and conditions);

10. Approved budget plan for categorizing allocable project funds to accomplish the stated purpose of the grant award; and

11. Other information or provisions deemed necessary by CSREES to carry out its respective granting activities or to accomplish the purpose of a particular grant.

C. Administrative and National Policy Requirements
Several Federal statutes and regulations apply to grant applications considered for review and to project grants awarded under this program. These include, but are not limited to:

7 CFR Part 1, subpart A—USDA implementation of the Freedom of Information Act.

7 CFR Part 3—USDA debt collection regulations.

7 CFR Part 15, subpart A—USDA implementation of Title VI of the Civil Rights Act of 1964, as amended.

7 CFR Part 331 and 9 CFR Part 121—USDA implementation of the Agricultural Bioterrorism Protection Act of 2002.

7 CFR Part 3015—USDA Uniform Federal Assistance Regulations, implementing OMB directives (i.e. OMB Circular Nos. A-21 and A-122) and incorporating provisions of 31 U.S.C. 6301-6308 (formerly the Federal Grant and Cooperative Agreement Act of 1977, Pub. L. No. 95-224), as well as general policy requirements applicable to recipients of Departmental financial assistance.

7 CFR Part 3017—USDA implementation of Government wide Debarment and Suspension (Nonprocurement) and Government wide Requirements for Drug-Free Workplace (Grants).

7 CFR Part 3018—USDA implementation of Restrictions on Lobbying. Imposes prohibitions and requirements for disclosure and certification related to lobbying on recipients of Federal contracts, grants, cooperative agreements, and loans.

7 CFR Part 3019—USDA implementation of OMB Circular No. A-110, Uniform Administrative Requirements for Grants and Other Agreements with Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations.

7 CFR Part 3052—USDA implementation of OMB Circular No. A-133, Audits of States, Local Governments, and Non-profit Organizations.

7 CFR Part 3407—CSREES procedures to implement the National Environmental Policy Act of 1969, as amended. 29 U.S.C. 794 (section 504, Rehabilitation Act of 1973) and 7 CFR Part 15b (USDA implementation of statute)—prohibiting discrimination based upon physical or mental handicap in Federally assisted programs.

35 U.S.C. 200 et seq.—Bayh-Dole Act, controlling allocation of rights to inventions made by employees of small business firms and domestic nonprofit organizations, including universities, in Federally assisted programs (implementing regulations are contained in 37 CFR Part 401).

D. Expected Program Outputs and Reporting Requirements
Grantees are required to submit annual and summary evaluation reports via the CSREES Current Research Information System (CRIS). CRIS is an electronic, Web-based inventory system that facilitates both grantee submissions of project outcomes and public access to information on Federally-funded projects.

If a project is funded, beginning in the first year of funding, the project director will be required to attend annual investigator meetings. Reasonable travel expenses should be included as part of the project budget.

PART VII—AGENCY CONTACTS

Applicants and other interested parties are encouraged to contact the NRI: telephone, (202) 401-5022; fax, (202) 401-6488; e-mail, nricgp@csrees.usda.gov . Specific questions pertaining to technical matters may be directed to the appropriate National Program Leader listed in the directory at the end of the document.

PART VIII—OTHER INFORMATION

A. Access to Review Information
Copies of reviews, excluding the identity of reviewers, and a summary of the panel comments will be sent to the applicant PD after the review process has been completed.

B. Use of Funds; Changes
1. Delegation of Fiscal Responsibility
Unless the terms and conditions of the grant state otherwise, the grantee may not in whole or in part delegate or transfer to another person, institution, or organization the responsibility for use or expenditure of grant funds.

2. Changes in Project Plans

(a) The permissible changes by the grantee, PD(s), or other key project personnel in the approved project grant shall be limited to changes in methodology, techniques, or other similar aspects of the project to expedite achievement of the project's approved goals. If the grantee or the PD(s) is uncertain as to whether a change complies with this provision, the question must be referred to the Authorized Departmental Officer (ADO) for a final determination. The ADO is the signatory of the award document, not the program contact.

(b) Changes in approved goals or objectives shall be requested by the grantee and approved in writing by the ADO prior to effecting such changes. In no event shall requests for such changes be approved which are outside the scope of the original approved project.

(c) Changes in approved project leadership or the replacement or reassignment of other key project personnel shall be requested by the grantee and approved in writing by the ADO prior to effecting such changes.

(d) Transfers of actual performance of the substantive programmatic work in whole or in part and provisions for payment of funds, whether or not Federal funds are involved, shall be requested by the grantee and approved in writing by the ADO prior to effecting such transfers, unless prescribed otherwise in the terms and conditions of the grant.

(e) Changes in Project Period: The project period may be extended by CSREES without additional financial support, for such additional period(s) as the ADO determines may be necessary to complete or fulfill the purposes of an approved project, but in no case shall the total project period exceed five years. Any extension of time shall be conditioned upon prior request by the grantee and approval in writing by the ADO, unless prescribed otherwise in the terms and conditions of a grant.

(f) Changes in Approved Budget: Changes in an approved budget must be requested by the grantee and approved in writing by the ADO prior to instituting such changes if the revision will involve transfers or expenditures of amounts requiring prior approval as set forth in the applicable Federal cost principles, Departmental regulations, or grant award.

C. Confidential Aspects of Applications and Awards

When an application results in a grant, it becomes a part of the record of CSREES transactions, available to the public upon specific request. Information that the Secretary determines to be of a confidential, privileged, or proprietary nature will be held in confidence to the extent permitted by law. Therefore, any information that the applicant wishes to have considered as confidential, privileged, or proprietary should be clearly marked within the application. Such an application will be released only with the consent of the applicant or to the extent required by law. The original copy of an application that does not result in a grant will be retained by the Agency for a period of three years. Other copies will be destroyed. An application may be withdrawn at any time prior to the final action thereon.

D. Regulatory Information

For the reasons set forth in the final Rule-related Notice to 7 CFR part 3015, subpart V (48 FR 29114, June 24, 1983), this program is excluded from the scope of the Executive Order 12372 which requires intergovernmental consultation with State and local officials. Under the provisions of the Paperwork Reduction Act of 1995 (44 U.S.C. chapter 35), the collections of information requirements contained in this Notice have been approved under OMB Document No. 0524-0039.

E. Application Disposition

When each peer review panel has completed its deliberations, the responsible program staff of the NRI will recommend that the project: (a) be approved for support from currently available funds or (b) be declined due to insufficient funds or unfavorable review.

The NRI reserves the right to negotiate with the PD and/or with the submitting organization or institution regarding project revisions (e.g. reductions in the scope of work), funding level, period, or method of support prior to recommending any project for funding.

An application may be withdrawn at any time before a final funding decision is made regarding the application; however, withdrawn applications normally will not be returned. One copy of each application that is not selected for funding (including those that are withdrawn) will be retained by the NRI for a period of three years. The remaining copies will be destroyed.

F. Materials Available on the Internet

The following are among the materials available on the NRI page (http://www.csrees.usda.gov/funding/nri/nri.html).

1. NRI 2007 Request for Applications

2. NRI Abstracts of Funded Research

3. NRI Annual Reports

G. Electronic Subscription to NRI Documents

The mail server "nri-epubs" is no longer available

H. Definitions
For the purpose of this program, the following definitions are applicable:

Administrator means the Administrator of the Cooperative State Research, Education, and Extension Service (CSREES) and any other officer or employee of the Department to whom the authority involved is delegated.

Authorized departmental officer means the Secretary or any employee of the Department who has the authority to issue or modify grant instruments on behalf of the Secretary.

Authorized organizational representative means the president, director, or chief executive officer or other designated official of the applicant organization who has the authority to commit the resources of the organization.

Department or *USDA* means the United States Department of Agriculture.
Education Activity means formal classroom instruction, laboratory instruction, and practicum experience in the food and agricultural sciences and other related matters such as faculty development, student recruitment and services, curriculum development, instructional materials and equipment, and innovative teaching methodologies.

Extension Activity means an act or process that delivers science-based knowledge and informal educational programs to people outside of the traditional classroom, enabling them to make practical decisions.

Fundamental research is research that tests scientific hypotheses and provides basic knowledge that enables advances in applied research and from which major conceptual breakthroughs are expected to occur.

Grant means the award by the Secretary of funds to an eligible organization or individual to assist in meeting the costs of conducting, for the benefit of the public, an identified project that is intended and designed to accomplish the purpose of the program as identified in these guidelines.

Grantee means an organization designated in the grant award document as the responsible legal entity to which a grant is awarded.

Integrated means to bring the three components of the agricultural knowledge system (research, education, and extension) together around a problem area or issue.

Matching means that portion of allowable project costs not borne by the Federal Government, including the value of in-kind contributions.

Minority means Alaskan Native, American Indian, Asian-American, Black (African-American), Hispanic American, Native Hawaiian, or Pacific Islander. The Secretary will determine on a case-by-case basis whether additional groups qualify under this definition, either at the Secretary's initiative, or in response to a written request with supporting explanation (see Part III, B.).

Minority-serving institution means an academic institution whose enrollment of a single minority or a combination of minorities, as defined in this section, exceeds fifty percent of the total enrollment, including graduate and undergraduate applied research and full- and part-time students. (Applicants applying under this category should indicate the current total enrollment of the institution in a cover letter). An institution in this instance is an organization that possesses a significant degree of autonomy.

Mission-Linked Research is research on specifically identified agricultural problems which, through a continuum of efforts, provides information and technology that may be transferred to users and may relate to a product, practice or process.

Multidisciplinary project means research, education and extension projects in which investigators from two or more disciplines are collaborating closely. These collaborations, where appropriate, may integrate the biological, physical, chemical, or social sciences.

Peer review means an evaluation of a proposed project for scientific or technical quality and relevance performed by experts with the scientific knowledge and technical skills to conduct the proposed work or to give expert advice on the merits of an application.

Prior approval means written approval evidencing prior consent by an authorized departmental officer as defined above.

Project means the particular activity within the scope of the program supported by a grant award.

Project director means the single individual designated in the grant application and approved by the Secretary who is responsible for the direction and management of the project.

Project period means the period, as stated in the award document, during which Federal sponsorship begins and ends.

Research activity means a scientific investigation or inquiry which results in the generation of knowledge.

Secretary means the Secretary of Agriculture and any other officer or employee of the Department to whom the authority involved is delegated.

Small and mid-sized institutions **for Integrated Projects** are academic institutions with a current total enrollment of 15,000 or less including graduate and undergraduate and full- and part-time students and that are no higher than the 50^{th} percentile of academic institutions funded by the National Research Initiative Competitive Grants Program in the past three years and are not within the top 100 Federally funded institutions (See Table 3 at the end of this document for an alphabetical listing of the most successful institutions). (Applicants applying under this category should indicate the current total enrollment of the institution in a cover letter.). An institution in this instance is an organization that possesses a significant degree of autonomy. Significant degree of autonomy is defined by being independently accredited as determined by reference to the current version of the *Higher Education Directory*, published by Higher Education Publications, Inc., 6400 Arlington Boulevard, Suite 648, Falls Church, Virginia 22042. (703-532-2300)

Small and mid-sized institutions **for Research Projects** are academic institutions with a current total enrollment of 15,000 or less including graduate and undergraduate and full- and part-time students. (Applicants applying under this category should indicate the current total enrollment of the institution in a cover letter.) An institution in this instance is an organization that possesses a significant degree of autonomy. Significant degree of autonomy is defined by being independently accredited as determined by reference to the current version of the *Higher Education Directory*, published by Higher Education Publications, Inc., 6400 Arlington Boulevard, Suite 648, Falls Church, Virginia 22042 (703-532-2300).

TABLE 1. Most Successful Universities and Colleges Receiving Federal Funds

Use to Determine Eligibility for Strengthening Research Awards - Most Successful Universities and Colleges Receiving Federal Funds for Science and Engineering Research and Development in FY 2003

The following institutions are NOT eligible for equipment grants:

Baylor College of Medicine
Boston University
Brown University
California Institute of Technology
Carnegie-Mellon University
Case Western Reserve University
Colorado State University
Columbia University
Cornell University
CUNY Mount Sinai School of Medicine
Dartmouth College
Duke University
Emory University
Florida State University
Georgetown University
Georgia Institute of Technology
Harvard University
Indiana University Purdue University at Indianapolis
Iowa State University
Johns Hopkins University
Massachusetts Institute of Technology
Medical College of Wisconsin
Medical University of South Carolina
Michigan State University
New York University
North Carolina State University
Northwestern University
Ohio State University
Oregon Health Sciences University
Oregon State University
Pennsylvania State University
Princeton University
Purdue University
Rockefeller University
Rutgers, The State University of New Jersey
Scripps Research Institute
Stanford University
State University of New York at Stony Brook
Thomas Jefferson University
Tulane University
University Corporation for Atmospheric Research
University of Alabama Birmingham
University of Arizona
University of California Berkeley
University of California Davis
University of California Irvine
University of California Los Angeles
University of California San Diego
University of California San Francisco
University of California Santa Barbara
University of Chicago
University of Cincinnati
University of Colorado Boulder
University of Colorado Health Sciences Center
University of Connecticut
University of Florida
University of Georgia
University of Hawaii Manoa
University of Kentucky
University of Illinois Urbana-Champaign
University of Illinois Chicago
University of Iowa
University of Maryland Baltimore Prof School
University of Maryland College Park
University of Massachusetts Amherst
University of Massachusetts Medical School Worcester
University of Medicine and Dentistry of New Jersey
University of Miami
University of Michigan Ann Arbor
University of Minnesota Twin Cities
University of Missouri Columbia
University of New Mexico
University of North Carolina Chapel Hill
University of Pennsylvania
University of Pittsburgh
University of Rochester
University of South Florida
University of Southern California
University of Texas at Austin
University of Texas Health Science Center Houston
University of Texas Health Science Center San Antonio
University of Texas MD Anderson Cancer Center
University of Texas Medical Branch Galveston
University of Texas SW Medical Center Dallas
University of Utah
University of Vermont
University of Virginia
University of Washington
University of Wisconsin Madison
Utah State University

Vanderbilt University
Virginia Commonwealth University
Wake Forest University
Washington University
Wayne State University
Woods Hole Oceanographic Institute
Yale University
Yeshiva University, New York

Based on data from the table Federal obligations for science and engineering research and development to the 100 universities and colleges receiving the largest amounts, ranked by total amount received: in FY 2003 of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (National Science Foundation).

TABLE 2. Lowest One Third of Universities and Colleges Receiving Federal Funds

Use to Determine Eligibility for Possible Waiver of Matching Funds Requirement for Equipment Grants – Lowest One Third of Universities and Colleges Receiving Federal Funds for Science and Engineering Research and Development in FY 2002[1]

Abilene Christian University
Adelphi COLLEGE
Agnes Scott College
Ak Pacific University
Alamo Community COLLEGE District All Campuses
Albany COLLEGE Of Pharmacy
Albany State University
Albion COLLEGE
Alderson-Broaddus College
Alma COLLEGE
American Indian Higher Ed. Consortium
American River College
Andrews UNIVERSITY
Angelo State University
Appalachian State University
Ar Tech University
Ashland UNIVERSITY
Assumption COLLEGE
Augustana College (Rock Island, Il)
Austin COLLEGE
Avila UNIVERSITY
Bank Street COLLEGE Of Ed.

Beloit COLLEGE
Bentley COLLEGE
Berry COLLEGE
Bethel COLLEGE And Seminary All Campuses
Bethune Cookman College
Bevill State Community Collegewalker Campus
Birmingham Southern College
Bloomsburg UNIVERSITY PA
Bradley UNIVERSITY
Brenau UNIVERSITY
Butler UNIVERSITY
COLLEGE Of Menominee Nation
COLLEGE Of St. Catherine
COLLEGE Of St. Scholastica
COLLEGE Of The Holy Cross
College Wooster
Cameron UNIVERSITY
Canisius COLLEGE
Gem National Consortium For Graduate Degrees For Minorities In Engineering And Science, Incollege
Cankdeska Cikana Community College
Central CT State UNIVERSITY
Central Ga Technical College
Chaminade University Honolulu
Chapman UNIVERSITY
Chief Dull Knife COLLEGE
City Colleges Chicago All Campuses
Claremont Mckenna COLLEGE
Coe College
Colby COLLEGE
Columbus State University
Contra Costa Community College
Cooper Union
Coppin State College
Cuny
Cuny Medgar Evers College
Daytona Beach Community COLLEGE
Delta State UNIVERSITY
Dillard University
Dowling COLLEGE
Drake UNIVERSITY
D'Youville COLLEGE
Earlham COLLEGE And Earlham School Of Religion
Eastern WA UNIVERSITY
Eckerd COLLEGE
Emerson COLLEGE
Emporia State University
Estrella Mountain Community COLLEGE
Evergreen State College
Fairmont State COLLEGE
Five Colleges, Incollege
FL Gulf Coast UNIVERSITY
Francis Marion UNIVERSITY
Frederick Community COLLEGE
Frostburg State UNIVERSITY
Ft. Berthold Community COLLEGE
Ft. Hays State UNIVERSITY
Ft. Lewis College
GA Perimeter COLLEGE
Gallaudet UNIVERSITY

Millsaps COLLEGE
MN State UNIVERSITY Moorhead

Geneva COLLEGE
Gordon-Conwell Theological Seminary
Goucher COLLEGE
Grand Valley State University
Grinnell COLLEGE
Gulf Coast Ed. Initiative Consortium, Incollege
Gustavus Adolphus College
Hartwick COLLEGE
Haskell Indian Nations University
Hostos Community College Cuny
Il Wesleyan University
Immaculata UNIVERSITY
Indiana UNIVERSITY PA All Campuses
Institute Of American Indian And AK Native Culture And Arts Development
International American University Pr
Isim UNIVERSITY
Jacksonville State University
Jacksonville UNIVERSITY
Jarvis Christian College
Judson College (Elgin, Il)
Juniata COLLEGE
Kettering UNIVERSITY
Keuka COLLEGE
Lac Courte Oreilles Ojibwa Community College
Lake Forest College
Lamar UNIVERSITY
Lane COLLEGE
Lawrence Technological University
Lawson State Community College
Le Moyne-Owen College
Le Tourneau University
Liberty UNIVERSITY
Los Angeles Community College
Loyola COLLEGE
Loyola UNIVERSITY Of New Orleans
Lubbock Christian University
Luther COLLEGE
Lynchburg COLLEGE
Lyon COLLEGE
Ma Bay Community College
Macon State College
Mary Baldwin College
Marymount College (Tarrytown, Ny)
Mcdaniel COLLEGE
Mcpherson COLLEGE
Medaille COLLEGE
Medvance Institute
Southeast Mo State University
Southeastern Ok State University
MN State Colleges & Universities
Ms-Al Sea Grant Consortium
MT State UNIVERSITY Northern
Mt. Mercy College
Muhlenberg COLLEGE
Niagara UNIVERSITY
Nj City University
North GA COLLEGE And State UNIVERSITY
Northern Mi University
Northland College
Northwest Mo State University
Northwestern COLLEGE (Orange City, IA)
Northwestern State UNIVERSITY
NY Institute Of Technology All Campuses
Occidental COLLEGE
Oklahoma City Community College
Pacific Lutheran UNIVERSITY
Paine College
Pasadena City COLLEGE
Paul Smith's College Of Arts And Sciences
Philadelphia University
Phoenix COLLEGE
Pontifical Catholic UNIVERSITY PR, The
Prince George's Community COLLEGE
Radford University
Ramapo College Nj
Regis UNIVERSITY
Rhodes COLLEGE
Richard Stockton College Nj
Rider University
Roanoke College
Rockhurst University
Rocky Mountain COLLEGE
Rogue Community College
Rollins COLLEGE
Rose-Hulman Institute Of Technology
Rust College
Salisbury UNIVERSITY
San Jacinto COLLEGE
Savannah State UNIVERSITY
Science & Engineering Alliance, Incollege
Siena College
Simpson College (Indianola, Ia)
Sisseton-Wahpeton Community College
Sistema Universitario Ana G. Mendez
Sitting Bull COLLEGE
Sojourner-Douglas COLLEGE
South Tx Community College
University Md University College
University Me Farmington

Southern Ct State University
Southern IL UNIVERSITY
Southwest FL COLLEGE
Southwest Mo State University
Southwestern Indian Polytechnic Institute
Springfield College (Springfield, Ma)
St. Anselm COLLEGE
St. Francis College (Brooklyn, Ny)
St. Joseph's College (North Windham, Me)
St. Mary's COLLEGE CA
St. Mary's University (San Antonio, Tx)
St. Norbert COLLEGE
St. Paul Technical College
St. Peter's COLLEGE

State University West Ga
Stephens COLLEGE
Sterling College (Craftbury Common, Vt)
Stillman COLLEGE
Suny College Cortland
Suny College Fredonia
SUNY COLLEGE Of Technology Alfred
Suny College Oneonta
Suny College Potsdam
Suny New Paltz
Suny Purchase College
Sweet Briar College
Talladega COLLEGE
Taylor University Upland
Thomas More College
Trinity College (Harford, Ct)
Trinity College (Washington, Dc)
Tri-State University
Tx A&M International University
Tx A&M University System Health Science Ctr.
University Ar Monticello
University Central Ar
University Central Ok
University Charleston
UNIVERSITY Consortium For Geographic Information Science
University Detroit Mercy
University Evansville
UNIVERSITY Of The Incarnate World
University Mt-Western, The
UNIVERSITY NC Asheville
UNIVERSITY New Haven
University Of St. Thomas (Houston, Tx)
University Of The Sacred Heart
University Of The South
UNIVERSITY Puget Sound
University Scranton
University Southern Co
UNIVERSITY TN Space Institute
University Wi Stevens Point
UNIVERSITY WI Stout
University Wi Whitewater
UNIVERSITYS. Military Academy
Uniformed Services University Of The Health Sciences
United Tribes Technical COLLEGE
Universidad Del Este
Universidad Del Turabo
Va Union University
Valdosta State University
Wabash COLLEGE
Washington And Lee University
Washington County Technical College
West Chester University Pa
West Tx A&M University
Western Carolina University
Western New England COLLEGE
Western Wi Technical College
Westmont College
Wheaton College (Wheaton, Il)
Whitworth College
Wi Lutheran College
Widener University All Campuses
Wilkes University
Willamette University
Winona State University
Winthrop University
Xavier University

Yavapai COLLEGE

Based on data from the table Federal obligations for science and engineering research and development to universities and colleges, ranked by total amount received, by agency: FY 2002 Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (National Science Foundation).

[1] University-administered foundations must contact CSREES' Competitive Programs Unit to determine their eligibility (see contact information on p. 136).

TABLE 3. Most Successful Universities and Colleges Receiving Federal and/or NRI Funds

Use to Determine Eligibility for Bridge Grants-Most Successful Universities and Colleges Receiving Federal and/or National Research Initiative Funds

Alabama A & M University*
Auburn University *
Baylor College of Medicine
Baylor University *
Boise State University *
Boston University
Brown University
California Institute of Technology
California State Polytechnic University *
Carnegie-Mellon University
Case Western Reserve University
City University of New York, City College*
Clemson University *
Colorado State University
Columbia University
Cornell University
CUNY Mount Sinai School of Medicine
Dartmouth College
Drew University*
Duke University
Emory University
Florida State University
Georgetown University
Georgia Institute of Technology
Harvard University
Illinois State University *
Indiana University Bloomington *
Indiana University Purdue University at Indianapolis
Iowa State University *
Johns Hopkins University
Kansas State University *
Louisiana State University *
Loyola University Chicago *
Massachusetts Institute of Technology
Medical College of Wisconsin
Medical University of South Carolina
Miami University*
Michigan State University
Michigan Technological University *
Mississippi State University
Montana State University *
New Mexico Institute of Mining and Technology *
New Mexico State University *
New York University
North Carolina State University *
North Dakota State University *
Northern Arizona University *
Northwestern University
Ohio State University
Oklahoma State University *
Oregon Health Sciences University
Oregon State University
Pennsylvania State University
Princeton University
Purdue University
Rice University *
Rockefeller University
Rutgers, The State University of New Jersey
Scripps Research Institute
South Dakota State University *
Southern Illinois University Carbondale *
Southwestern Indian Polytechnic Institute *
Stanford University
State University of New York at Albany *
State University of New York at Stony Brook
State University of New York College of Environmental Science & Forestry *
Texas A&M University *
Texas Tech University *
Thomas Jefferson University
Tufts University *
Tulane University
University of Alabama Birmingham
University of Alaska Fairbanks *
University of Arizona
University of Arkansas Fayetteville *
University of California Berkeley
University of California Davis
University of California Irvine
University of California Los Angeles
University of California Riverside *
University of California San Diego
University of California San Francisco
University of California Santa Barbara
University of California Santa Cruz *
University of Chicago
University of Cincinnati
University of Colorado Boulder
University of Connecticut
University of Delaware *
University of Florida
University of Georgia
University of Hawaii Manoa
University of Idaho *
University of Illinois Chicago
University of Illinois Urbana-Champaign
University of Iowa
University of Kansas
University of Kentucky
University of Maine Orono *

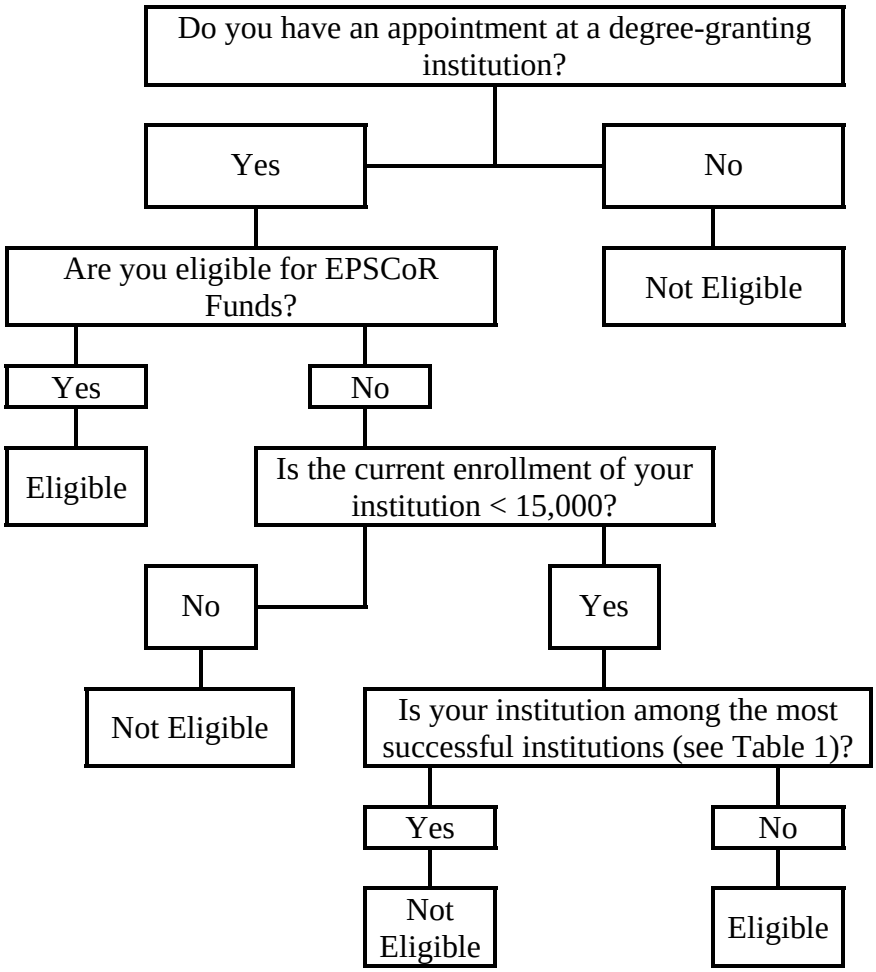
University of Maryland Baltimore Prof Sch
University of Maryland Biotechnology Institute *
University of Maryland College Park
University of Massachusetts Amherst *
University of Massachusetts Medical School Worcester
University of Medicine and Dentistry of New Jersey
University of Miami
University of Michigan Ann Arbor
University of Minnesota Twin Cities
University of Mississippi *
University of Mississippi Medical Center *
University of Missouri Columbia
University of Missouri Rolla *
University of Missouri St. Louis *
University of Montana *
University of Nebraska Lincoln *
University of Nebraska Kearney *
University of Nevada Las Vegas *
University of Nevada Reno *
University of New Hampshire *
University of New Mexico
University of North Carolina Chapel Hill
University of North Carolina Greensboro *
University of North Texas *
University of Notre Dame *
University of Oklahoma Health Sciences Center *
University of Oregon *
University of Pennsylvania
University of Pittsburgh
University of Rhode Island *
University of Rochester
University of South Florida
University of Southern California
University of Tennessee Knoxville *
University of Texas at Austin
University of Texas Health Science Center San Antonio
University of Texas Health Science Center Houston
University of Texas MD Anderson Cancer Center
University of Texas Medical Branch Galveston
University of Texas SW Medical Center Dallas
University of Utah
University of Vermont
University of Virginia
University of Washington
University of Wisconsin Madison
University of Wyoming *
Utah State University
Vanderbilt University
Virginia Commonwealth University
Virginia Institute of Marine Science *
Wake Forest University
Washington State University *
Washington University
Wayne State University
West Virginia University *
Woods Hole Oceanographic Institute
Yale University
Yeshiva University New York

Based on data from the table Federal obligations for science and engineering research and development to the 100 universities and colleges receiving the largest amounts, ranked by total amount received: in FY 2003 of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (National Science Foundation).

*Annotated institutions are not in the list for the most successful Federally funded, but were among the top 50th percentile of those funded by the National Research Initiative (Competitive, Special, and Facilities Research Grant Act (7 U.S.COLLEGE 450i(b)).

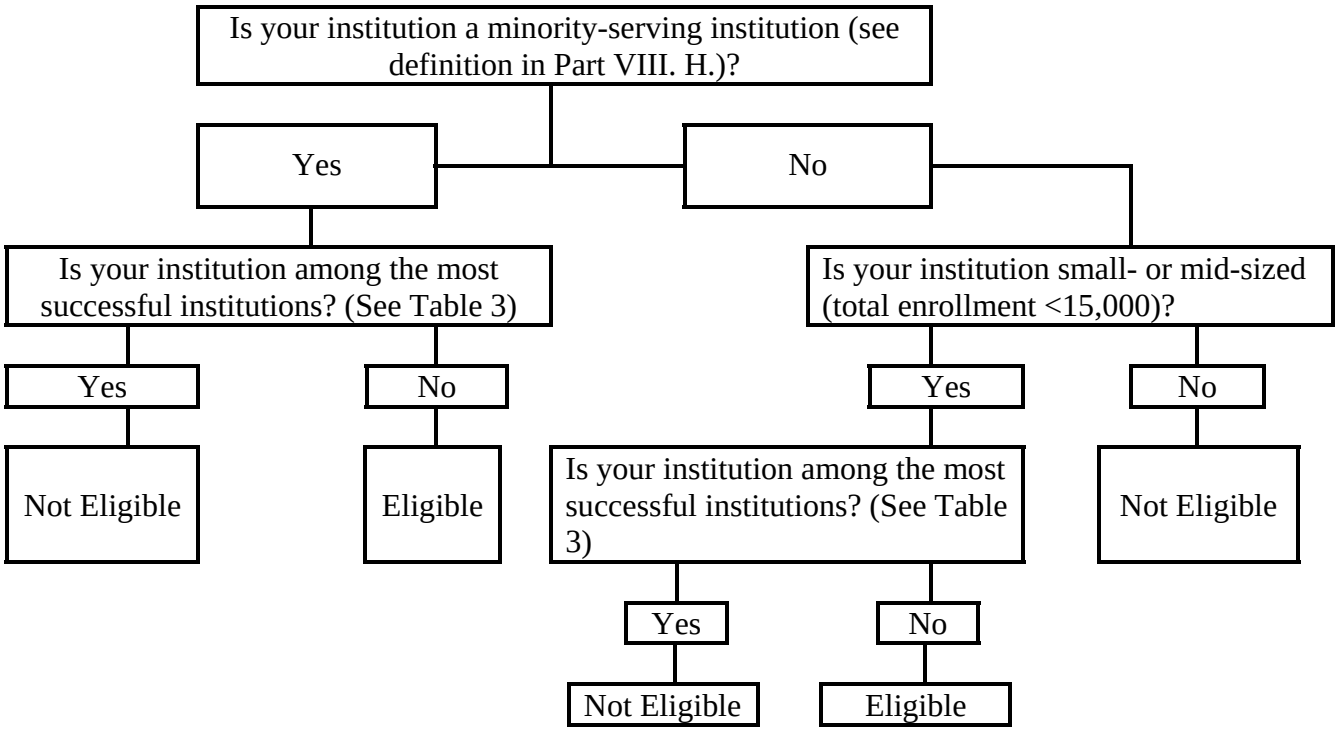
FIGURE 1.Flow Chart for Strengthening Research Award Eligibility

(Seed Grants, Research Career Enhancement Awards, Strengthening Standard Awards; **NOT Equipment Grants***)



*The only requirements for Equipment Grants are that the institution is degree granting and not among the Most Successful Universities and Colleges (see Table 1).

FIGURE 2. Flow Chart for Bridge Grant Eligibility



Directory

NRI Competitive Grants Program Staff and Applicable Office of Extramural Program Contacts

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Extension and Education Advisor – Elbert Dickey, Phone (202) 720-2727, Fax: (202) 401-1782, Email: edickey@csrees.usda.gov
Science Advisor – This position is currently vacant.
Integrated Programs Director - Deborah Sheely, Phone: (202) 401-1924, Fax: (202) 401-1782, E-mail: dsheely@csrees.usda.gov
Research Director- Mark Poth, Phone: (202) 401-5022, Fax: (202) 401-6071, E-mail: mpoth@csrees.usda.gov
Office of Extramural Programs - **Awards Management Branch** - Administrative issues regarding award processing and post-award management. Phone: (202) 401-4342 or (202) 401-5050 Fax: (202) 401-6271 or (202) 401-3237
20.2 Plant Biosecurity – National Program Leaders: Liang-Shiou Lin, Phone: (202) 401-5042, Fax: (202) 401-6488, E-mail: llin@csrees.usda.gov; John L. Sherwood, National Program Leader, Phone: (202)690-1659, Fax: (202)401-6488, E-mail: jsherwood@csrees.usda.gov
23.1 Managed Ecosystems – Diana Jerkins, National Program Leader, Phone: (202) 401-6996, Fax : (202) 401-6071, E-mail: djerkins@csrees.usda.gov
25.0 Soil Processes - Nancy Cavallaro, National Program Leader, Phone: (202) 401-4082, Fax: (202) 401-6071, E-mail: ncavallaro@csrees.usda.gov
26.0 Water and Watersheds- Mary Ann Rozum, National Program Leader , Phone: (202) 401-4533, Fax: (202) 401-1706, E-mail: mrozum@csrees.usda.gov
27.0 Global Change Initiatives – Nancy Cavallaro, National Program Leader, Phone: (202) 401-4082, Fax: (202) 401-6071, E-mail: ncavallaro@csrees.usda.gov
28.0 Air Quality – Ray Knighton, National Program Leader, Phone: (202) 401-6417, Fax: (202) 401-1706, E-mail: rknighton@csrees.usda.gov
31.0 Bioactive Food Components for Optimal Health - Etta Saltos, National Program Leader, Phone: (202) 401-5178, Fax: (202) 205-3641, E-mail: esaltos@csrees.usda.gov
31.5 Human Nutrition and Obesity – National Program Leaders: Etta Saltos, Phone: (202) 401-5178, Fax: (202) 205-3641, E-mail: esaltos@csrees.usda.gov; Susan Welsh, Phone: (202) 720-5544, Fax: (202) 720-9366, E-mail: swelsh@csrees.usda.gov
32.0 Food Safety – Chris Wozniak, National Program Leader, Phone: (202) 401-6020, Fax: (202) 401-6156, E-mail: cwozniak@csrees.usda.gov
32.1 Epidemiological Approaches for Food Safety - Mary Torrence, National Program Leader, Phone: (202) 401-6357, Fax: (202) 401-5179, E-mail : mtorrence@csrees.usda.gov
41.0 Animal Reproduction - Mark Mirando, National Program Leader, Phone: (202) 401-4336, Fax: (202) 205-3641, E-mail: mmirando@csrees.usda.gov
42.0 Animal Growth and Nutrient Utilization - Mark Mirando, National Program Leader, Phone: (202) 401-4336, Fax: (202) 205-3641, E-mail: mmirando@csrees.usda.gov
43.0 Animal Genome- National Program Leaders: Peter Burfening, Phone: (202) 401-5823, Fax: (202) 401-6488, E-mail: pburfening@csrees.usda.gov; Muquarrab Qureshi, Phone: (202)401-4895, Fax: (202) 401-1602, E-mail: mqureshi@csrees.usda.gov
44.0 Animal Protection and Biosecurity – National Program Leaders: Peter Johnson, Phone: (202) 401-1896, Fax: (202) 205-3641, E-mail: pjohnson@csrees.usda.gov; Peter Brayton, Phone: (202) 401-4399, Fax: (202) 401-6071, E-mail: pbrayton@csrees.usda.gov
51.0 Microbial Genomics - Ann Lichens-Park, National Program Leader, Phone: (202) 401-6460, Fax: (202) 401-6488, E-mail: apark@csrees.usda.gov

51.2 Arthropod and Nematode Biology and Management - Mary Purcell-Miramontes, National Program Leader, Phone: (202) 401-0222, Fax: (202) 401-6488, E-mail: mpurcell@csrees.usda.gov
51.8 Microbial Biology– John L. Sherwood, National Program Leader, Phone: (202)690-1659, Fax: (202) 401-6488, E-mail: jsherwood@csrees.usda.gov ; Ann Lichens-Park, National Program Leader, Phone: (202) 401-6460, Fax: (202) 401-6488, E-mail: apark@csrees.usda.gov
51.9 Biology of Weedy and Invasive Species in Agroecosystems – Michael Bowers, National Program Leader, Phone: (202) 401-4510, Fax: (202) 401-1706, E-mail: mbowers@csrees.usda.gov
52.1 Plant Genome - Ed Kaleikau, National Program Leader, Phone: (202) 401-1931, Fax: (202) 401-6071, E-mail: ekaleikau@csrees.usda.gov
56.0 Plant Biology: - Liang-Shiou Lin, National Program Leader, Phone: (202) 401-5042, Fax: (202) 401-6488, E-mail: llin@csrees.usda.gov; Gail McLean, National Program Leader, Phone: (202) 401-6060, Fax: (202) 401-6488, E-mail: gmclean@csrees.usda.gov
61.0 Agricultural Markets and Trade – – National Program Leaders: S. (Suresh) Sureshwaran, Phone: (202) 720-7536, Fax: (202) 401-6070, E-mail: ssureshwaran@csrees.usda.gov
62.0 Rural Development – – National Program Leaders: S. (Suresh) Sureshwaran, Phone: (202) 720-7536, Fax: (202) 401-6070, E-mail: ssureshwaran@csrees.usda.gov
66.0 Agricultural Prosperity for Small and Medium-Sized Farms – National Program Leaders: S. (Suresh) Sureshwaran, Phone: (202) 720-7536, Fax: (202) 401-6070, E-mail: ssureshwaran@csrees.usda.gov; Diana Jerkins, Phone: (202) 401-6996, Fax: (202) 401-6488, E-mail: djerkins@csrees.usda.gov
71.1 Improving Food Quality and Value – National Program Leaders: Ram Rao, Phone: (202) 401-6010, Fax: (202) 401-4888, E-mail: rrao@csrees.usda.gov; Hongda Chen, Phone: (202) 401-6497, Fax: (202) 401-4888, Email: hchen@csrees.usda.gov
71.2 Biobased Products and Bioenergy Production Research – Chavonda Jacobs-Young, National Program Leader; Phone: (202) 401-6188, Fax: (202) 401-6071, E-mail: cjacobs@csrees.usda.gov
75.0 Nanoscale Science and Engineering for Agriculture and Food Systems – Hongda Chen, National Program Leader, Phone: (202) 401-6497, Fax: (202) 401-4888, E-mail: hchen@csrees.usda.gov

NRI DEADLINE DATES FOR FY 2007

The following dates have been established for FY 2007 application submission deadlines within the National Research Initiative Competitive Grants Program, Cooperative State Research, Education, and Extension Service, United States Department of Agriculture. To be considered for funding in any fiscal year, applications must be SUBMITTED TO Grants.gov by Close of Business (5:00 P.M., Eastern Time) on the date listed below. When the deadline date falls on a weekend or Federal holiday, transmission must be made by the following business day.

In FY 2007 several programs require a letter of intent prior to submission of the full application. Select individuals will be invited to submit a complete application by the program's deadline. Applications submitted to programs requiring a letter of intent without the proper invitation will be returned without review. To be considered for funding in any fiscal year, applications must be SUBMITTED TO Grants.gov by Close of Business (5:00 P.M., Eastern Time) on the date listed below. When the deadline date falls on a weekend or Federal holiday, transmission must be made by the following business day.

Programs offered in any fiscal year depend on availability of funds and deadlines may be delayed due to unforeseen circumstances. Consult the NRI home page (http://www.csrees.usda.gov/funding/nri/nri.html) for up-to-date information.

Program Number and Program Name	National Program Leader	Letter of Intent	Letter of Intent Due Date	Application Due Date	Integrated
20.2 Plant Biosecurity	Dr. Liang-Shiou Lin	N/A	N/A	6/5/2007	Yes
23.1 Managed Ecosystems	Dr. Diana Jerkins	Yes	10/5/2006	12/14/2006	Yes
25.0 Soil Processes	Dr. Nancy Cavallaro	Yes	12/6/2006	2/14/2007	No
26.0 Water and Watersheds	Ms. Mary Ann Rozum	N/A	N/A	1/17/2007	No
27.0 Global Change Initiatives	Dr. Nancy Cavallaro	N/A	N/A	Joint with EPA. See EPA website	No
28.0 Air Quality	Dr. Ray Knighton	N/A	N/A	6/5/2007	Yes
31.0 Bioactive Food Components for Optimal Health	Dr. Etta Saltos	Yes	11/8/2006	1/17/2007	Yes
31.5 Human Nutrition and Obesity	Dr. Etta Saltos	N/A	N/A	6/5/2007	Yes
32.0 Food Safety	Dr. Chris Wozniak	N/A	N/A	12/14/2006	No
32.1 Epidemiological Approaches for Food Safety	Dr. Mary Torrence	N/A	N/A	12/14/2006	Yes
41.0 Animal Reproduction	Dr. Mark Mirando	N/A	N/A	11/29/2006	Yes
42.0 Animal Growth and Nutrient Utilization	Dr. Mark Mirando	N/A	N/A	6/5/2007	Yes

Program Number and Program Name	National Program Leader	Letter of Intent	Letter of Intent Due Date	Application Due Date	Integrated
43.0 Animal Genome (A): Applied Animal Genomics	Dr. Peter Burfening	N/A	N/A	6/5/2007	Yes
43.0 Animal Genome (B): Tools and Resources	Dr. Peter Burfening	N/A	N/A	6/5/2007	No
43.0 Animal Genome (C): Bioinformatics	Dr. Peter Burfening	N/A	N/A	6/5/2007	No
43.0 Animal Genome (D): Functional Genomics	Dr. Peter Burfening	N/A	N/A	Not Offered	N/A
44.0 Animal Protection and Biosecurity (A): Animal Disease	Dr. Peter Johnson	N/A	N/A	11/29/2006	No
44.0 Animal Protection and Biosecurity (B): Animal Well-Being	Dr. Peter Brayton	N/A	N/A	11/29/2006	Yes
44.0 Animal Protection and Biosecurity (C): Animal Biosecurity Coordinated Agricultural Projects (CAP)	Dr. Peter Johnson	N/A	N/A	8/14/2007	Yes
51.0 Microbial Genomics (A): Genome Sequencing	Dr. Ann Lichens-Park	N/A	N/A	Joint with NSF. See NSF website.	No
51.0 Microbial Genomics (B): Functional Genomics of Microorganisms	Dr. Ann Lichens-Park	N/A	N/A	6/5/2007	No
51.2 Arthropod and Nematode Biology and Management (A): Organismal and Population Biology	Dr. Mary Purcell-Miramontes	N/A	N/A	1/17/2007	No
51.2 Arthropod and Nematode Biology and Management (B): Suborganismal Biology	Dr. Mary Purcell-Miramontes	N/A	N/A	6/5/2007	No
51.2 Arthropod and Nematode Biology and Management (C): Tools, Resources, and Genomics	Dr. Mary Purcell-Miramontes	N/A	N/A	6/5/2007	No
51.8 Microbial Biology (A): Microbial Observatories	Dr. John Sherwood	N/A	N/A	10/9/2006 See NSF website	No
51.8 Microbial Biology (B): Biology of Plant-Microbe Associations	Dr. Ann Lichens-Park	N/A	N/A	12/14/2006	No
51.9 Biology of Weedy and Invasive Species in Agroecosystems	Dr. Michael Bowers	Yes	12/6/2006	2/14/2007	Yes
52.1 Plant Genome (A): Tools, Resources, and Bioinformatics	Dr. Ed Kaleikau	N/A	N/A	2/14/2007	No

Program Number and Program Name	National Program Leader	Letter of Intent	Letter of Intent Due Date	Application Due Date	Integrated
52.1 Plant Genome (B): Functional Genomics	Dr. Ed Kaleikau	N/A	N/A	2/14/2007	No
52.1 Plant Genome (C): Genome Structure and Organization	Dr. Ed Kaleikau	N/A	N/A	Not Offered	No
52.1 Plant Genome (D): Applied Plant Genomics Coordinated Agricultural Project (CAP)	Dr. Ed Kaleikau	Yes	12/6/2006	2/14/2007	Yes
56.0 Plant Biology (A): Gene Expression and Genetic Diversity	Dr. Liang-Shiou Lin	Yes	10/5/2006	12/14/2006	Yes
56.0 Plant Biology (B): Environmental Stress	Dr. Gail McLean	Yes	10/5/2006	12/14/2006	Yes
56.0 Plant Biology (C): Biochemistry	Dr. Gail McLean	Yes	12/6/2006	2/14/2007	No
56.0 Plant Biology (D): Growth and Development	Dr. Liang-Shiou Lin	Yes	12/6/2006	2/14/2007	No
61.0 Agricultural Markets and Trade	Dr. S. Sureshwaran	N/A	N/A	6/5/2007	No
62.0 Rural Development	Dr. S. Sureshwaran	N/A	N/A	Not Offered	No
66.0 Agricultural Prosperity for Small and Medium-Sized Farms	Dr. S. Sureshwaran	N/A	N/A	2/14/2007	Yes
71.1 Improving Food Quality and Value	Dr. Ram Rao	Yes	11/8/2006	01/17/2007	Yes
71.2 Biobased Products and Bioenergy Production Research	Dr. Chavonda Jacobs-Young	Yes	11/8/2006	1/17/2007	No
75.0 Nanoscale Science and Engineering for Agriculture and Food Systems	Dr. Hongda Chen	N/A	N/A	Not Offered	N/A

CHECKLIST

Only electronic applications may be submitted to CSREES via Grants.gov in response to this RFA. All applications submitted under the NRI must contain the applicable elements outlined in these guidelines. The following checklist has been prepared to assist in ensuring that the application is complete prior to submission:

- Have all attachments been submitted in the portable document format (PDF)? CSREES will only accept PDF attachments. See Part III of the CSREES Grants.gov Application Guide.
- Do all submitted PDF documents have one-inch margins and are typed or word processed using no type smaller than 12 point regardless of line spacing? Are all PDF documents numbered sequentially on each page of the attachment? Are all page limitations for a given attachment followed? Submitted proposals that do not meet these requirements for PDF attachments will be returned without review.
- Have all seven components of the SF 424 Research and Related (R&R) Application Package been completed? Did you use the "Check Package for Errors" feature of the PureEdge viewer (see section 1.8 of the CSREES Grants.gov Application Guide)?
  - ☐ SF 424 R&R Cover Sheet
  - ☐ R&R Other Project Information
  - ☐ R&R Senior/Key Person Profile
  - ☐ R&R Personal Data
  - ☐ R&R Budget
  - ☐ Supplemental Information Form
  - ☐ NRI Proposal Type Form
- **SF 424 R&R Cover Sheet**
  - Have all required fields been completed?
- **R&R Other Project Information**
  - Have the fields describing project potential or actual environmental impact been properly completed?
  - Project Summary/Abstract
    Has the Project Summary PDF been attached to this form in Field 6?
    Are the names and affiliated organizations of all Project Directors listed at the top of the page in addition to the title of the project?
    Has a CSREES goal been identified in the Project Summary?
    Does the Project Summary include research, education, and/or extension objectives, as appropriate?
    If an integrated project is being proposed, is this indicated in the Project Summary?
    Does this section adhere to the format and page limitations?
  - Project Narrative
    Has the Project Narrative PDF been attached to this form in Field 7?
    Is the project fully described?
    If a renewal application, is a clearly marked progress report included?
    Does this section adhere to the format and page limitations?
  - Bibliography & References Cited
    Has the Bibliography & References Cited PDF been attached to this form in Field 8?
    Are all references cited and are all citations referenced?
    Do all citations contain a title, the names of all authors, and are they in accepted journal format?
  - Facilities & Other Resources
    Has the Facilities & Other Resources PDF been attached to this form in Field 9?
    Has a description of your facilities, sufficient to indicate that you will be able to carry out this project, been given?
  - Equipment
    Has the Equipment PDF been attached to this form in Field 10?

Is the description of your equipment sufficient to indicate that you will be able to carry out this project?

- Response to Previous Review (for resubmissions and resubmitted applications)
  Has the Response to Previous Review PDF been attached to this form in Field 10?
  Has the application been clearly and meaningfully revised and are the revisions briefly described?
  Are comments from the previous review addressed?
- Key Personnel & Management Plan
  Has the Key Personnel & Management Plan PDF been attached to this form in Field 10?
  Are roles and responsibilities of the PD, co-PD(s), and/or collaborator(s) clearly described?
  For integrated projects only, are the management plan and timeline for project implementation clearly described?
- Collaborative Arrangements
  Has the Collaborative Arrangements PDF been attached to this form in Field 10?
- Results from Prior NRI Support (if appropriate)
  Has the Results from Prior NRI Support PDF been attached to this form in Field 10?
  Does this section adhere to the format and page limitations?
- Appendices to Project Description
  Has the Appendices to Project Description PDF been attached to this form in Field 10?
  Are the reprints/preprints limited to 2 (as described in the instructions)?

R&R Senior/Key Person Profile

- Biographical Sketch
  Has the biographical sketch (vitae) PDF for the PD and each co-PD, senior associate, and other professional personnel been attached?
- Current and Pending Support
  Has the current and pending support PDF for personnel with PD or co-PD(s) been attached?
  Have all current and pending projects been listed and summarized, **including this proposal**?

R&R Personal Data

- Have all fields been completed?
- Are annual and summary budgets included? For multi-institutional applications, has a budget been included for each institution involved?

R&R Budget

- Have all fields been completed for each PD and co-PD(s)?
- Budget Justification
  Has the Budget Justification PDF been attached to this form in Field K?
  Are budget items individually justified?
  For multi-institutional applications, has a budget justification been included for each institution involved?
  Have any matching requirements been addressed, if applicable?

Supplemental Information Form

- Has Field 1 been pre-populated such that "National Research Initiative Competitive Grants Program" appears under Funding Opportunity Name and "USDA-GRANTS-NRI-000141" for Funding Opportunity Number?
- Does Field 2 indicate the Program Code Name and Program Code to which you are applying?
- Conflict of Interest List
  Has the Conflict of Interest List PDF been attached to this form in Field 8?
  Has a Conflict of Interest List been provided for all individuals who have submitted a Biographical Sketch?
  Does the Conflict of Interest list include the four categories as appropriate?

NRI Proposal Type Form

- Is proposal type properly indicated on the NRI Proposal Type Form?